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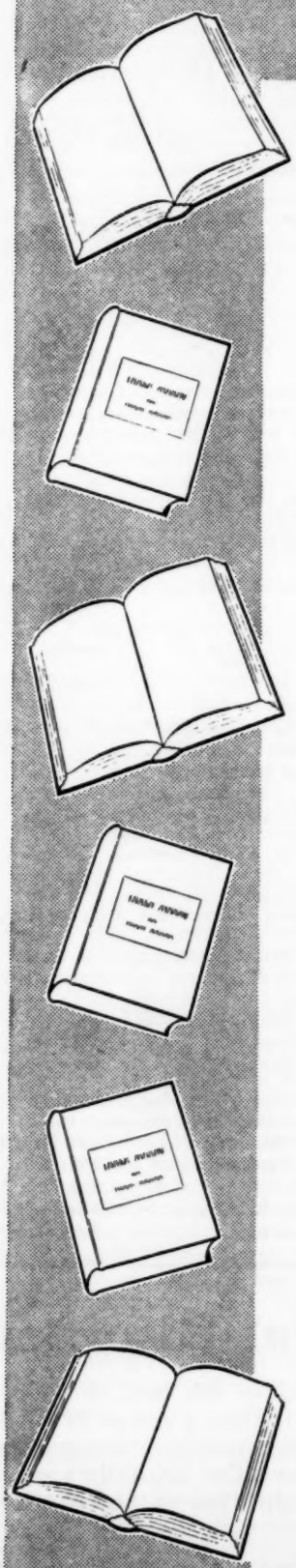

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LENGTH OF SURVIVAL AFTER MYOCARDIAL INFARCTION

CHAIRMAN'S ADDRESS

Carter Smith, M.D., Atlanta, Ga.

More than 30 years have elapsed since myocardial infarction attained widespread clinical recognition. During this time many reports of large groups of patients with this disease have appeared in the literature. The majority of the reports describe follow-up periods ranging from two to six years.

Except for isolated instances of unusual longevity very little in the medical literature deals with follow-up periods of longer than 10 years in groups of patients who had had myocardial infarction. For this reason the ultimate prognosis in such patients is uncertain. In 1941 Bland and White [1] contributed the first follow-up report of more than 10 years for 50 patients in a group of 200.

Since this time other workers have added additional patients to the longterm follow-up studies of this disease.[2] In December, 1951, Master and Jaffe [3] contributed an additional 40 patients to the literature who had been followed for periods longer than 10 years after coronary occlusion. As these data accumulate, there seems to be more reason for optimism regarding the prognosis in some patients who recover clinically from the initial attack.

Many factors remain obscure as to why some patients survive to normal life expectancy after myocardial infarction while the majority do not. Further study of this longtime survival group then seems important if more accurate prognosis is to be possible in this bizarre, unpredictable disease.

My original study,[2d] with Sauls and Ballew, concerned 100 consecutive patients with coronary thrombosis who were followed from 1930 to 1941. Seventeen were seen in consultation with other physicians, and the remainder were private patients under our care. All patients were white, and the majority were in the middle or upper social and economic levels.

MORTALITY RATES FOR 100 PATIENTS OVER TWO DECADES

At the time the initial 10 year study was completed in 1941, there were 66 survivors of the original 100 patients. At the end of the next 10 years (1952) only 16 patients were alive and under my care; 69 were known to be dead and 15 had been lost to follow-up. The majority of those lost to follow-up were patients of referring physicians. They are probably dead, as their myocardial infarcts occurred more than 15 years ago and most of them would be more than 70 years of age.

Of the 35 patients who died during the second decade follow-up (1941-1952), there were 14 who lived well into the second decade after their initial myocardial infarction. It is these 14 dead patients and the 16 who are still living that claim most of my attention in this study. Before the 30 longterm survivors are considered, it will be necessary to discuss some facts that are pertinent to the entire group of 100 patients.

Length of Life After Myocardial Infarction.—Except for the isolated instances of extreme longevity, survival periods following myocardial infarction have been based on follow-up studies of six years or less. The average length of life after myocardial infarction as derived by an average of the previously reported studies [2a] is 41.1 months. In our series of 100 patients (table 1) there were 60 patients who lived longer than the average expectancy of 41.1 months after myocardial infarction.

Fifteen of our 100 patients died within the first 28 days after infarction. Nine months later 10 more were dead and by the end of nine years an additional 30 patients were known to be dead. Thus the immediate mortality rate (within 28 days) for the 100 patients was 15%; death within one year occurred in 25%; within six years 34% died; and within nine years 55% were

Nell Bowman, R.N., assisted in gathering the follow-up data.

From the Medical Services of Piedmont Hospital and Emory University School of Medicine.

Read before the Section on Internal Medicine at the 101st Annual Session of the American Medical Association, Chicago, June 11, 1952.

1. Bland, E. F., and White, P. D.: Coronary Thrombosis (with Myocardial Infarction): 10 Years Later, J. A. M. A. **117**: 1171 (Oct. 4) 1941.

2. (*a*) Rosenbaum, F. F., and Levine, S. A.: Prognostic Value of Various Clinical and Electrocardiographic Features of Acute Myocardial Infarction: Immediate Prognosis, Arch. Int. Med. **68**: 913 (Nov.) 1941; Ultimate Prognosis, ibid. **68**: 1215 (Dec.) 1941. (*b*) Weiss, M. M., and Gray, W. R.: Ultimate Prognosis of Acute Myocardial Infarction: Study of 434 Patients Who Survived for More than Two Months, J. Kentucky State M. A. **48**: 216, 1950. (*c*) Boas, E. P.: The Natural History of Coronary Artery Disease of Long Duration, Am. Heart J. **41**: 323, 1951. (*d*) Smith, C.; Sauls, H. C., and Ballew, J.: Coronary Occlusion: A Clinical Study of 100 Patients, Ann. Int. Med. **17**: 681, 1942. (*e*) Billings, F. T., Jr., and others: Prognosis of Acute Myocardial Infarction, Am. J. Med. **7**: 356, 1949. (*f*) Papp, C., and Smith, S. K.: Prognosis and Treatment of Cardiac Infarction: A Survey of 200 Patients, Brit. M. J. **1**: 1471 (June) 1951.

3. Master, A. M., and Jaffe, H. L.: Complete Functional Recovery After Coronary Occlusion and Insufficiency, J. A. M. A. **147**: 1721 (Dec. 29) 1951.

dead. These mortality rates are roughly in line with those previously recorded [2a] except for the report of Billings and co-workers.[2e] They found a 40% mortality within the first 30 days after the acute attack.

During the second decade after myocardial infarction 14 of the 45 survivors (69% of the total group) were known to have died and 15 others who were lost to follow-up probably died. The majority of these "lost patients" would now be over 70 years of age, and their life expectancy should be exhausted. It is reasonably certain that, by the end of the second decade of follow-up, the mortality rate slightly exceeded 80%.

TABLE 1.—*Length of Life* After Myocardial Infarction in 100 Patients Followed from 1931 to 1952*

Survived Less Than One Month		Survived Less Than One Year		Survived Less Than 10 Years		Survived 10 Years or More	
Days Survived	No. of Patients	Months Survived	No. of Patients	Years Survived	No. of Patients	Years Survived	No. of Patients
1	4	2	4	1	4	10	4
7	5	3	4	2	9	12	2
14	1	5	1	3	2	15	3
21	3	9	1	4	4	16	1
28	2		—	5	2	17	1
	—	Total	10	6	6	19	2
Total	15			7	1	36	1
				8	1		—
				9	1	Total	14
					—		
				Total	30		

* Sixteen patients were still living at the time of writing and 15 had been lost to follow-up.

Causes of Death.—During the second decade (1941-1952) of the follow-up, 35 of the 66 survivors died. Fourteen of these patients experienced very sudden death, and three died within 24 hours after the onset of the second or third myocardial infarction. Eleven patients died in congestive heart failure of 9 to 48 months' duration. Two died of renal failure. Five patients had degenerative disease of the central nervous system that resulted in death. No data are available to determine the probable cause of death in the 15 patients who were lost to follow-up.

TABLE 2.—*Diseases Associated with Myocardial Infarction*

Disease	No. in 100 Patients in First Decade	No. in 51 Survivors in Second Decade *
Obesity	35	11
Diabetes	8	5
Chronic gallbladder disease	9	3
Chronic bronchitis	9	0
Cerebral arteriosclerosis	3	
Cerebrovascular accident	3	13
Psychoses	3	
Prostatic hypertrophy with resection	0	1
Total with associated disease	70	33

* No data were available on 15 patients who were lost to follow-up after the first decade.

Associated Diseases.—In comparing the 1941 report to the 1952 report (table 2), the expected increase in vascular disease affecting the central nervous system can be seen. There is also a notable decrease in obesity during this second 10 year follow-up period for the entire group. The absense of neoplastic disease in patients of this age level is of interest.

FACTORS IN THIRTY CASES OF SURVIVAL MORE THAN TEN YEARS AFTER MYOCARDIAL INFARCTION

Sex Distribution.—In the original 100 patients, there were 15 women and 85 men. In the 30 patients who lived more than 10 years after myocardial infarction there were 7 women and 23 men. This appears to indicate a significantly longer survival time for women than for men in those who live into the second decade. This is in contrast to findings previously reported for shorter follow-up periods. Bland and White [1] found a much higher mortality rate in women.

The Age Factor.—In the 30 patients who survived more than the 10 year period, the initial infarction occurred in the fourth decade in only one, 13 occurred in the fifth decade, 10 in the sixth decade, and 6 in the seventh decade. In an attempt to correlate age at the time of initial infarction with survival time (table 3), no definite relation between age of onset and survival time could be seen in this study. Some previous investigators have showed a more favorable prognosis in those having the initial attack in the third and fourth decades.[4]

TABLE 3.—*Age, Sex, and Time Lapse After Myocardial Infarction in Thirty Patients Followed More Than Ten Years*

14 Deceased Patients				16 Living Patients			
Patient	Sex	Age at Death, Yr.	Survival After Attack, Yr.	Patient	Sex	Age at Follow-Up, Yr.	Time Initial Attack, Yr.
1	F	67	10	1	M	59	13
2	F	70	10	2	F	69	18
3	M	76	15	3	M	60	18
4	M	68	15	4	M	66	20
5	M	56	10	5	M	55	18
6	M	67	19	6	F	65	13
7	M	83	36	7	M	77	15
8	M	77	12	8	M	51	17
9	M	76	12	9	F	78	20
10	M	67	17	10	M	69	19
11	M	70	10	11	M	64	15
12	F	66	19	12	M	73	14
13	M	61	16	13	M	61	18
14	F	50	10	14	M	62	15
				15	M	71	18
				16	M	70	18

Padilla and associates [5] and Boas [2c] in their studies found no parallelism between age of onset and survival. Russek and his co-workers [6] have recently attempted to correlate age and mortality in a group of 1,047 patients with acute myocardial infarction. They were unable to demonstrate any definite relation of age and length of life after myocardial infarction. There was, however, a definite relation between the mortality rate and the severity of initial attack regardless of the age of the patient.

Hypertension.—In previous reports [2a] hypertension has been found to exist prior to myocardial infarction in from 33% to 73% of cases. In our initial report in 1941, hypertension was found prior to infarction in 41 of 100 patients. In the group of 30 patients followed more than

4. Bland and White.[1] Rosenbaum and Levine.[2a]

5. Padilla, T., and Cossio, P.: Prognóstico del Infarto de Miocardio, Rev. Argent de Cardiol. **1**: 181, 1934.

6. Russek, H. I., and others: Age and Survival in Cases of Acute Myocardial Infarction, J. A. M. A. **147**: 1731 (Dec. 29) 1951.

10 years 14 patients had hypertension prior to myocardial infarction. Nine of these who had hypertension were dead at the time of writing. Only 5 of the 16 patients with normal blood pressure were dead. In previously reported studies [7] hypertension did not adversely affect the prognosis after myocardial infarction.

It is noteworthy in this study that only 5 of the 16 patients living and under observation had hypertension. This incidence is lower than the reported incidence in larger groups of patients followed for shorter periods of time. With the accumulation of more data on follow-up periods of more than 10 years after myocardial infarction, it is possible that hypertension may be shown to be a more important factor in shortening the survival period in those who survive 10 years or more.

Relation Between Severity of Initial Attack and Longevity.—Most observers have been unable to show any definite relation between the severity of the attack and length of life in those who make a successful clinical recovery from the immediate initial infarction. Russek and co-workers [6] have found a decreased survival time in those with the severer attacks of acute myocardial infarction.

In my 30 patients with longterm follow-up studies, the severity of the initial attack did bear a definite relation to longevity. Thirteen of 16 patients living 10 years after myocardial infarction had had attacks of mild to moderate severity. Seven of the 14 deceased patients who survived the initial myocardial infarction for 10 years had initial attacks of mild or moderate severity, and severe initial attacks occurred in 4 of the 14 deceased patients. It does seem true that, even though the initial attack is severe, if clinical recovery is nearly complete then the prognosis may be good.

Relation Between Angina Pectoris and Length of Life.—From previous reports, angina pectoris preceding myocardial infarction has been variously reported to occur in from 22.4% to 50% of patients.[2a] Some increase in morbidity was found in these patients but no increase in mortality rates.

Angina pectoris after myocardial infarction is reported in the literature to occur in from 5 to 63% of patients.[2a] There was no definite relationship between recurrent angina and the pattern of the electrocardiograms. Neither was there any apparent influence on length of life in those who developed recurrent angina. In 50 patients followed by Bland and White [1] for more than 10 years, angina pectoris after myocardial infarction was found in 33 patients. In my 30 patients who were followed more than 10 years, 9 of the 14 deceased and only 4 of the 16 living at the time of writing had recurrent angina.

Recurrent Coronary Thrombosis.—Bland and White [1] found that 16 of their 50 patients who survived the first 10 years after myocardial infarction had one or more subsequent attacks of myocardial infarction. In my series 13 of 30 patients had second or third myocardial infarcts, and 9 of these 13 patients are dead. In the 16 patients still living at the time of writing only 4 had recurrent myocardial infarction during the second decade.

Relation of Electrocardiographic Changes to Prognosis.—Electrocardiographic recovery does not seem to bear as an important relationship to prognosis as clinical recovery.[2a] In correlating length of survival in my second decade study with electrocardiographic findings, it seems significant that no patient with persistent electrocardiographic signs of severe myocardial damage lived far into the second decade after myocardial infarction. Such findings as persistent S-T segment deviation, A-V block, auricular fibrillation, bundle branch block, or low voltage in the conventional limb leads did not persist in those surviving from 11 to 28 years. No significant difference between survival rates of those with anterior and posterior infarctions could be found in this group

Length of Follow-Up, Age and Degree of Recovery.—In the 14 deceased patients the average length of follow-up was 15.7 years and the average age at death was 68. The youngest patient at death was 56 and the oldest was 83. The shortest follow-up was 10 years and the longest 36 years.

In the 16 patients surviving when this study was made, the average follow-up period was 16.8 years and the average age was 65. The youngest patient was 55 and the oldest was 78. The shortest follow-up had been for 10 years and the longest for 20. Age difference then played no significant part in the survival time of this group. Of the 16 still living, 8 were clinically well, 6 had limited cardiac reserve (activity was restricted for 2 because of angina), and 2 patients were incapacitated by combinations of vascular disease and chronic alcoholism.

Recovery of Work Capacity.—Various degrees of return to normal work activity are reported for group studies of less than 10 years. In Rosenbaum and Levine's [2a] series of 354 patients 30% returned to full occupational activity, 45% returned to partial occupational activity, 22% to very light work, and 3% were completely incapacitated for work. Master and Dack [8] reported a 59% return to normal occupational activity in their series.

In the second decade study of our 30 patients there were 20 who resumed nearly normal activity for periods varying between 5 and 20 years after myocardial infarction. Seven patients resumed restricted activity for less than five years, and three never returned to their normal occupations. In patients of this advanced age group, factors other than myocardial infarction were responsible in part for cessation of normal occupational activity.

COMMENT

As the end draws nearer in the longterm follow-up study of this group of 100 patients with coronary disease and myocardial infarction, the unpredictable and bizarre effects of coronary disease are more impressive. The unusual lengths of life in the 30 patients of this group provide a basis for a more favorable prognostic attitude, from the standpoint of both mortality and morbidity. That much productive capacity remains in patients who experience a myocardial infarction with clinical recovery is now being recognized by the medical profession, industry, and insurance companies. The committee on "Cardiac in Industry" of the American Heart Association is making every effort to improve the situation inso-

7. Bland and White.[1] Smith.[2d]
8. Master, A. M., and Dack, S.: Rehabilitation Following Acute Coronary Artery Occlusion, J. A. M. A. 115: 828 (Sept. 7) 1940.

far as industrial hazards and workmen's compensation laws are concerned so that persons in this productive age level can remain occupied. It is generally felt that recurrent myocardial infarctions are more apt to occur because of emotional stress than because of moderate physical stress. Certainly retirement from life work is a cause for emotional stress in most persons.

The majority of the patients in this study did not have the advantage of the new therapeutic approaches such as use of anticoagulants, low fat diet, low sodium regimens, early ambulation, and use of efficient mercurial diuretics. With the recognized decrease in mortality and morbidity associated with the use of these procedures, it is quite possible that the longterm follow-up studies of the next 20 years will result in even more optimistic prognostic evaluation. Many questions are yet to be answered, but, through the coordinated efforts of the intense investigative work now in progress, it is hoped that the next 20 years will bring solutions to many of the unanswered problems. Preventive effort may then become the most important approach to the problem.

SUMMARY

A report on the survivors in the second decade follow-up of 100 patients with myocardial infarction is presented. Sixty-nine were known to be dead, 15 were lost to follow-up but were assumed to be dead, and 16 were still living and under observation. The youngest of the living patients was 51 years of age and the oldest was 78. Another 20 years may elapse before a final report of this series can be made.

Thirty of these 100 patients were followed from a minimum of 10 years to a maximum of 36 years. It was to this group of 30 patients that most of our attention in this report is directed. As pointed out by Bland and White,[1] it is important to distinguish between the outcome of acute myocardial infarction with its complications and the longterm course of coronary disease in those who survive the critical period of the acute attacks of myocardial infarction. More longterm follow-up studies will afford a better over-all prognostic picture for this disease.

384 Peachtree St., N.E.

SHOCK AND VASCULAR INJURY

Harris B. Shumacker Jr., M.D., Indianapolis

In no realm of surgery is prompt and adequate treatment more important than in the management of acute injuries of the large peripheral blood vessels. Both the patient's life and the anatomic and functional integrity of his injured extremity are at stake. It is my purpose to outline the fundamental principles that underlie the treatment of these injuries. For the sake of brevity I shall omit reference to the numerous clinical and experimental studies that have contributed so much to the clarification of the general problem. The immediate danger resides in the loss of blood and the shock that may result from it. It is axiomatic that the best treatment for shock is its prevention, and this should be the primary objective. There are two problems—the control of hemorrhage and the replacement of blood lost. Both should be dealt with immediately.

CONTROL OF HEMORRHAGE

Occasionally, spontaneous cessation of bleeding will have occurred. This fortuitous happening is more likely when only small vessels are lacerated, when veins rather than arteries are injured, when there is considerable contusion of tissues in general and of the damaged vessels in particular, when blood vessels are completely divided rather than partially severed, when the soft tissue wound is so small as to make the egress of blood to the exterior difficult, and when there is a laceration of a concomitant vein into which the arterial blood lost can find ready passage back into the vascular system. In contrast, bleeding is apt to be persistent when large vessels are damaged, when arteries rather than veins are lacerated, when there is little or no contusion of the wound, when vessels are only partially divided, and when the wound is sufficiently large to permit unimpeded passage of blood to the outside.

The best method for arresting the hemorrhage will necessarily vary from case to case. If applicable, some means should be selected that will avoid further injury to the damaged blood vessel and will not necessitate a period of complete ischemia of the affected extremity. Sometimes, manual compression over the wound or a snug pressure dressing will suffice. Occasionally, proximal digital occlusion of the artery will prove effectual. Though this is an ideal method, it often is not applicable and can never be used except for relatively brief periods. Direct tamponade of the wounds by packing with gauze or some absorbable hemostatic material may control bleeding, but this has the disadvantage of increasing the hazard of infection. Furthermore, if gauze is used, its removal is attended by danger of secondary bleeding. Clamping of the bleeding point is an effective method, especially in the case of small superficial vessels that can be clamped with accuracy. In deep wounds, however, additional damage may be inflicted by the inadvertent clamping of uninjured adjacent structures, such as nerves. In addition, clamping of a lacerated artery may increase the damage to it and preclude its successful repair by lateral suture.

If none of these more conservative methods is applicable, one may have to resort to the use of a tourniquet. The tourniquet may be lifesaving, but it may also compromise the integrity of the extremity. To be effective it must shut off all blood flow to the limb, and its long-continued use is incompatible with tissue survival. Unless the

From the Department of Surgery, the Indiana University School of Medicine.

This study was aided in part by a contract with the Office of Naval Research, Department of the Navy.

Read before the Section on Military Medicine at the 101st Annual Session of the American Medical Association, Chicago, June 12, 1952.

extremity must obviously be sacrificed, the tourniquet should be released periodically, preferably at intervals as frequent as every hour. During release, bleeding must be controlled by some other method, such as proximal arterial occlusion. If bleeding cannot be controlled during periods of release, it is obviously better to leave the tourniquet undisturbed than to subject the patient to repeated hemorrhage. When the limb is so badly damaged that amputation will obviously be required, the tourniquet should be placed as near the site of injury as possible so that any local damage resulting from the tourniquet will be in the portion of the limb sacrificed. If there is any likelihood of saving the limb, the tourniquet should be placed some distance proximal to the site of injury so that exploration may be carried out beyond the level of the tourniquet.

REPLACEMENT OF BLOOD LOST

Numerous civilian experiences testify to the superiority of whole blood in the prevention or treatment of shock resulting from blood loss, and experiences of warfare confirm these observations on a grand scale. In injuries of large blood vessels, the primary problem is one of loss of whole blood. In addition, to be sure, plasma may be extravasated into the badly traumatized extremity and may be a contributing factor in the development of shock in certain cases. Nevertheless, the problem is essentially one of whole blood loss. If shock has not developed, one must gage replacement therapy by estimation of the probable quantity of blood lost. Additional blood should be given if any indication of impending shock occurs, such as a rise in pulse rate, fall in blood pressure, or development of peripheral vasoconstriction. If shock is present, blood replacement should be prompt and adequate and should be continued until all signs of circulatory collapse are gone. There is some evidence to suggest that profound shock can be more promptly and effectively managed by intra-arterial than by intravenous transfusions. Certainly, in ordinary circumstances the rapid intravenous administration of adequate amounts of whole blood is satisfactory. If whole blood is not available, plasma is the best substitute. Recent studies with various chemical plasma expanders, carried out principally at the instigation of the National Research Council, suggest that some of them are of real value. If none of these agents is at hand, physiological electrolyte solutions may be of temporary aid in the maintenance of adequate circulation. When no fluid replacement is possible and a state of shock is present or is developing rapidly, exclusion of circulation from the uninjured extremities, preferably by wrapping them with an Esmarch bandage, may prove lifesaving by temporarily increasing the effective circulating blood volume. This method should not be used except in dire circumstances, however. The circulatory exclusion should not be maintained for long periods of time, and it is essential that adequate amounts of blood or plasma be infused before release. Obviously, every other aid should be utilized in the treatment of shock: that is, the head-down position (unless contraindicated by concomitant chest injury), avoidance of overheating the patient, and relief of pain by prompt attention to the injury sustained and by the judicious use of morphine. If drugs must be given in the presence of circulatory collapse, they are best given intravenously rather than subcutaneously.

CARE OF INJURED EXTREMITY

Once the hemorrhage is brought under control and blood loss has been replaced, attention must be directed to the definitive care of the injured extremity. It is difficult to formulate any broad policy that will cover all cases, since the treatment of each must be individualized. In general, immediate operative treatment is unnecessary in cases of small, clean, incised, or penetrating wounds with no foreign bodies or with only small and relatively clean foreign bodies, such as small metallic fragments, provided that bleeding has ceased, that the continuity of no main arterial channel has been interrupted and no ischemia is present, and that no rapidly expanding pulsating hematoma is present. All contused and dirty wounds and those containing large dirty foreign bodies must be adequately débrided. Obviously, operation is mandatory in all cases in which bleeding persists and should be performed promptly in all cases in which the main blood supply to the limb has been interrupted and in which resultant ischemia persists in spite of efforts to relieve it. Prompt operation is also indicated in the case of pulsating hematomas in which the threat of rupture is imminent and of those associated with definite neural compression.

It is unfortunate when double standards of treatment must be set up. There are, however, certain situations in which the choice of treatment must be dependent on the ready availability of personnel trained in vascular reparative techniques and of proper equipment. Cases with relatively clean, noncontused wounds in which blood flow through an important arterial stem has been interrupted but in which there is no threat of gangrene can be managed satisfactorily by either delayed or immediate operative treatment. This is true whether or not a pulsating hematoma is present, provided it is not expanding rapidly and threatening to rupture or is not causing neural compression. Without operation there is assurance that the limb will survive, and, if a pulsating hematoma is present and a saccular aneurysm subsequently develops, it can be treated at a later date. On the other hand, if proper reparative surgery is done, there is an excellent possibility of restoring completely normal circulation to the extremity and avoiding certain sequelae that may develop in limbs deprived of their main arterial blood supply even when the circulation is adequate at rest—symptoms such as sympathetic overactivity, sensitivity to cold, and intermittent claudication. Such reparative attempts by operators untrained in specific methods of vascular repair, however, are fraught with little likelihood of success and with too much danger of additional vascular damage to warrant them. The choice of treatment in such cases is well illustrated by a recent personal experience.

A young man was admitted to the hospital approximately three hours after having received a small caliber gunshot wound in the left subclavicular area. He had a large pulsating hematoma. No pulse was palpable in the brachial, radial, or ulnar arteries. The hand was cooler than the contralateral hand, and the patient had a subjective sense of slight numbness of the hand and forearm. However, no definite neurological deficit was demonstrable on examination. It was clear that the extremity would survive and that treatment of the aneurysm that would develop could

be deferred. On the other hand, the patient had arrived shortly after his injury in an institution where proper facilities were available. It was decided to proceed with operation. After isolating the artery proximal to the site of injury, the hematoma was evacuated and the completely severed axillary artery was repaired by end-to-end suture. This procedure resulted in complete restoration of normal circulation and in cure of pulsating hematoma.

MANAGEMENT OF BLOOD VESSEL INJURY

In the management of the specific blood vessel injury, certain fundamental principles must be observed. In the first place, it is necessary to have control of bleeding, either by isolation of the proximal and distal portions of the vessel before attacking the site of injury or by the use of a proximal tourniquet. The injured vessel should be dissected free of surrounding tissue, and, if ligation is to be carried out, the vessels should be ligated individually rather than en masse. Only nonabsorbable suture material should be used. If ligation is to be performed, division and ligation and transfixion rather than ligation in continuity should be practiced. Injuries to small arteries, of little or no importance in the nutrition of the limb, should be treated by division and ligation rather than by efforts at repair. Similarly, injured veins should in general be treated by ligation. Possible exceptions are large veins in which there is only a small rent that can be closed easily by lateral suture. Since there is no convincing evidence that ligation of the concomitant vein increases the effectiveness of collateral blood flow in cases in which a main arterial stem must be ligated, this procedure seems unwarranted. The patient should be draped in such a way that the hand or foot can be exposed during the operation in order to observe the influence upon the blood flow of any necessary surgery.

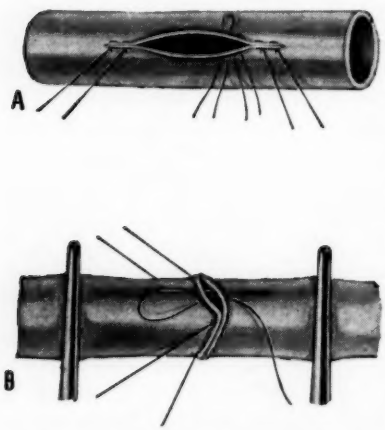

Fig. 1.—Diagrammatic illustration of technique of lateral arteriorrhaphy (*A*) and end-to-end anastomosis (*B*), using everting mattress sutures. In end-to-end repair illustrated, ends of the vessel are quadrangulated by means of four equidistant traction sutures.

If vascular reparative surgery is to be accomplished, it is important that the vessel be handled with great care, that only nontraumatizing clamps be used for temporary occlusion, that the gross adventitia be stripped so as to prevent its falling into the line of suture, that the intimal surface of the vessel be kept moistened during the procedure, and that only the finest of needles and nonabsorbable suture material be used. Either the Carrel type of continuous over-and-over suture or everting mattress sutures may be used. There is some evidence to suggest that everting mattress sutures are preferable and that, whenever applicable, interrupted sutures are better than continuous sutures. For this reason it is my preference in ordinary circumstances to use the interrupted everting mattress sutures of Briau and Jaboulay (fig. 1). If a sufficient portion of the injured vessel may be exposed so that it can be rotated on its axis during the process of suture, it is useful to triangulate or quadrangulate the wound with traction sutures in order to facilitate repair. If the local situation permits mobilization of only a short segment of the injured artery or if rotation of the vessel is prohibited by the presence of branches that fix the divided stump, a modification of the technique utilized by Blalock in subclavian-pulmonary anastomosis is of real advantage (fig. 2). In this procedure the posterior layer is accomplished by means of a continuous everting mattress suture that is drawn tight after its placement. The anterior half of the anastomosis can then be completed with ease with interrupted everting mattress sutures. Whenever reparative surgery is done, the simplest effective method should be selected. Lateral suture rather than division and end-to-end suture should be used when applicable. End-to-end repair of the divided artery should be used, if possible, in preference to interposition of a free blood vessel graft. If the divided ends of vessel cannot be approximated, the use of free grafts holds considerable promise of success. Ordinarily, a suitable autogenous vein is available (fig. 3). The saphenous vein is generally adequate for such purposes.

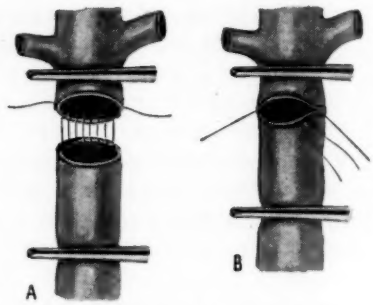

Fig. 2.—Drawing illustrating technique of end-to-end repair using continuous everting mattress suture for deep half of circumference (*A*) and interrupted mattress sutures for superficial half (*B*). The continuous suture is placed and then drawn taut, following which the two ends are fixed by tying them to interrupted sutures. This technique is useful when vessel cannot be rotated in order to facilitate placement of sutures.

TREATMENT OF ISCHEMIC EXTREMITY

Obviously, vascular repair is fruitless if thrombosis of the distal arterial tree has already occurred This is the crux of the problem of successful reparative vascular surgery. The chief factors that are prone to favor thrombosis in the distal arterial tree are the length of time intervening between injury and surgical exploration and the adequacy or inadequacy of collateral blood flow. For this reason it is of utmost importance that definitive surgery be performed with the least possible delay whenever the limb is ischemic. Treatment of the ischemic extremity should take precedence over treatment of any other associated injury that is not in itself a threat to the patient's life. In the meantime everything should be done to promote the effectiveness of the collateral circulation.

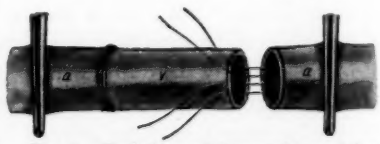

Fig. 3.—Technique of interposition of free vascular transplant (*v*) in order to bridge defect in artery (*a*). Same technique is used as in end-to-end arterial anastomosis.

The ischemic limb should be handled with the greatest care. Every effort should be made to avoid further trauma to it. It is inadvisable to use either local heat or local refrigeration. The hand or foot should be protected from the pressure of bedclothes by leaving it exposed or by the

use of footboards or other devices to elevate the bedclothes. The limb should be placed in a position of optimal blood flow, somewhat dependent to the level of the heart. The best method for encouraging maximal function of the collateral circulation is to utilize regional sympathetic blockade. This can be accomplished by placing a plastic tube or catheter in the region of the sympathetic chain in order to permit intermittent injection of procaine or some other anesthetic agent. In some instances it is preferable to carry out an alcoholic injection of the regional sympathetics. In certain cases it may be advisable to perform operative sympathectomy immediately following operative attack upon the injured blood vessels. If none of these methods seems applicable, repeated sympathetic blocks with procaine may be useful. It would be desirable to decrease the likelihood of further thrombosis by adequate anticoagulant therapy. However, this should never be utilized except in cases in which hemostasis is complete, and often this condition does not obtain. If there is any question as to the adequacy of control of bleeding, anticoagulants should not be used.

It must be kept in mind that the interruption of blood flow through important arteries does not necessarily indicate arterial division. It may be the consequence of traumatic arterial thrombosis or of segmental arterial spasm. If the wound is so superficial that it does not extend to the depths of the obstructed artery, it is clear that one or the other of these processes is at work. It is difficult to outline clear-cut proposals for the management of these conditions because of the paucity of recorded experiences with them. It is obvious that in both conditions it is of utmost importance to use every means available for increasing the effectiveness of the collateral circulation. Segmental arterial spasm may disappear dramatically with return of perfectly adequate circulation following the use of sympathetic block or spinal or caudal anesthesia. Unfortunately, not all instances of this disorder can be treated so effectively. If the spasm persists in spite of sympathetic blockade, it is possible that it might be relieved by the proximal intra-arterial injection of procaine solution or some vasodilating agent. One can only speculate as to the possible effectiveness of exploring the artery, stripping it of its adventitia, and bathing it in procaine solution. One can also only speculate as to whether excision of a persistently spastic segment and replacement with a vascular graft would meet with success. In cases of traumatic thrombosis limited to a short segment, it is possible that thrombectomy and adequate anticoagulant therapy or excision of the thrombosed segment with interposition of a vascular graft might be effective. In either condition the use of anticoagulant therapy would seem indicated, provided hemostasis is complete.

TREATMENT OF ARTERIOVENOUS FISTULAS AND ARTERIAL ANEURYSMS

There is rarely any indication for immediate or early operative treatment of arteriovenous fistulas or arterial aneurysms. Generally, definitive surgery can be deferred and performed as an elective procedure at some later date. I am convinced that the proper time for such treatment is to be determined not by the interval that has elapsed following injury but rather by the demonstration from carefully performed tests that the collateral circulation about the injured vessel is adequate. An exceptional circumstance in which an arteriovenous fistula should be treated early is the case of a large fistula in which frank cardiac failure intervenes shortly after injury. Exceptional circumstances in which pulsating hematomas or saccular aneurysms should be treated early rather than later have already been mentioned. They include cases in which there is rapid expansion with definite imminent threat of external rupture or cases in which there is clear evidence of neural compression. Certainly any case of pulsating hematoma in which the blood flow through the affected artery has been interrupted and in which ischemia is present deserves immediate surgical treatment. Pulsating hematomas occurring in patients in whom there is maintenance of blood flow through the injured artery should be treated by an elective operation at some later date. The decision as to whether to perform immediate surgery in cases of pulsating hematoma in which there is interruption of blood flow through the affected artery without ischemia should be dependent, as has been mentioned previously, upon the availability or unavailability of personnel well trained in reparative vascular techniques.

COMMENT

Minor differences of opinion may exist concerning certain specific problems in the management of the acute injuries of large peripheral vessels and the shock that may develop as the result of them. There is no disagreement, however, about the broad principles that underlie their management. These principles are based on large clinical experiences and experimental contributions from numerous laboratories. Under ideal circumstances the treatment of acute vascular injuries should be attended by a low mortality and a high incidence of anatomic and functional preservation of the affected extremity. Unfortunately, the ideal is frequently not realized. The chief stumbling blocks are the delay between injury and treatment and the frequent unavailability of properly trained surgical personnel and equipment at the time of their most urgent need. Direction of energy towards correction of these two factors should bring about some over-all improvement in the results obtained. It must be recognized, however, that the conditions of warfare and of some civilian injuries often preclude the prompt treatment that is essential for their most successful management.

1040-1232 W. Michigan St. (7).

Acute Abdominal Conditions.—There are two conditions in the genito-urinary tract that are frequently confused with acute surgical conditions of the abdomen. One is acute pyelitis, especially in children. In this disease the initial manifestation frequently is vomiting, with abdominal pain and high fever. There is often abdominal tenderness of sufficient degree to cause one to entertain the diagnosis of acute appendicitis. Of course, this error will be avoided if a catheterized specimen of urine is examined. A right seminal vesiculitis has frequently been mistaken for acute appendicitis in young men. Such cases were seen frequently in military medical service. The patient complains of right lower quadrant pain. It is sometimes accompanied by vomiting. The pain is aggravated by motion and there is marked tenderness in the right lower quadrant. The diagnosis is established by rectal palpation of the seminal vesicles. A rectal examination should always be made in suspected appendicitis.—Wendell B. Gordon, M.D., Medical Conditions Simulating Acute Surgical Conditions in the Abdomen, *Pennsylvania Medical Journal*, September, 1952.

TENSION HEADACHE

Arnold P. Friedman, M.D., Naomi de Sola Pool, M.D.
and
Theodore J. C. von Storch, M.D., New York

It is our contention that tension headache may be differentiated from migraine, conversion (hysterical), muscular, and other types of headache. In this presentation we will discuss a group of patients with tension headaches, their mechanism, characteristics, diagnosis, and response to therapy. Tension headaches have been reported in the literature under many names, including psychogenic, "muscle tension," and vascular headache. Our experience has indicated that recognition of this type of headache by the clinician will save him and his patient many hours of needless examination and treatment.

We believe that the term tension headache should be limited to head pain occurring in relation to constant or periodic emotional conflicts, which may be conscious or unconscious. Such an emotional state may induce headache by producing changes in the caliber of the cranial vessels and spasm of the skeletal muscles of the head and neck. Tension headaches have no prodroma, are usually bilateral, occipital, or frontal, and may be accompanied by a variety of associated signs, including anxiety, nausea, and vomiting. Frequency and duration are variable.

Conversion headache cannot be distinguished from tension headache on the basis of the clinical description alone. The main distinction is that in the conversion headache the symptoms represent a specific unconscious symbolic meaning and the conversion mechanisms are prevalent.

Tension headache may be differentiated from migraine headache because the latter is usually brief, paroxysmal, unilateral, and throbbing in character; it is frequently associated with gastrointestinal symptoms and often is preceded by an aura. A familial history of such headaches is prevalent.

Muscular headaches differ from tension headaches in that the former occur with local muscle or nerve root injury and secondarily to noxious stimulation elsewhere in the head. The clinical features of the conditions causing the muscle spasm, such as ocular or sinus infection or arthritis of the cervical spine, usually serve to differentiate this type of muscular headache from spasm associated with emotional tension.

METHODS

For this study we selected 400 consecutive patients with tension headaches who were seen at the Montefiore Hospital headache clinic for a period of one to four years. The material was analyzed according to age, sex, presence of prodromal signs, location, frequency, intensity and duration of headaches, associated symptoms, family history, precipitating factors, and response to symptomatic treatment. Physical, neurological, and psychological examinations were performed on each patient. Many had special laboratory examinations, including roentgenograms of the skull and cervical spine, visual field determination, and complete blood examination. Psychological tests were performed in many cases by our staff psychologists.

RESULTS

Analysis of Headache.—Analysis of our 400 patients with diagnosis of tension headache revealed that 69% (257 of the total) are females. This preponderance of females is far greater than occurs in the total population of the headache clinic. We feel, therefore, that the sex incidence is statistically a significant factor.

The age grouping of tension headaches reveals fewer tension headaches in the early and late decades. The greatest number occurred during the third and fourth decades. The age of onset of headache in these patients indicates that the majority of patients began having headaches in the earlier decades, and have suffered from headache the greatest part of their life.

Forty-one per cent of our patients had had headaches for 10 years or longer. Only 5% had had headaches for less than six months when first seen at the headache clinic. Most of the tension headaches are gradual in onset and offset.

With regard to frequency, 23% claimed their headache was constant, with exacerbations of severer pain. These patients stated that they were never really free from cranial discomfort, even when sleeping. The largest group (32%) had daily headaches. Patients having headaches oftener than once a week constitute 82% of our group. The severity and the frequency of the headaches serve as selective factors in our series, as patients with mild or infrequent headache do not usually seek specialized treatment. In comparison to our general clinic population and especially our migraine group, the much greater frequency of tension headache is again striking enough to be considered of statistical significance.

The duration of the headache attack is extremely variable, not only from case to case but also in the same individual. In contrast to the migraine group, there is rarely a set pattern of tension headache that runs its

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From the Headache Clinic of the Division of Neuropsychiatry, Montefiore Hospital.

Read before the Section on Nervous and Mental Diseases at the 101st Annual Session of the American Medical Association, Chicago, June 11, 1952.

Attending Physician, Division of Neuropsychiatry, Montefiore Hospital, and Assistant Professor of Clinical Neurology, College of Physicians and Surgeons, Columbia University (Dr. Friedman); Adjunct Attending Physician in Medicine, Montefiore Hospital (Dr. de Sola Pool); and Chief of the Division of Neuropsychiatry, Montefiore Hospital, and Professor of Clinical Neurology, College of Physicians and Surgeons, Columbia University (Dr. von Storch).

The following firms supplied the drugs used in this study: Lilly Research Laboratories, Eli Lilly & Company, Indianapolis, amobarbital (amytal®) sodium; Smith, Kline & French Laboratories, Philadelphia, *d*-amphetamine (dexedrine®) sulfate; Sandoz Pharmaceuticals, Division of Sandoz Chemical Works, New York, acetophenetidin, caffeine, acetylsalicylic acid, and isobutylallylbarbituric acid (fiorinal®), dihydroergotamine methanesulfonate ("DHE 45"), ergotamine tartrate, belladonna alkaloids, and phenobarbital (bellergal®), ergotamine and caffeine (cafergot®), methanesulfonates of dihydrogenated ergotoxine alkaloids ("hydergine"), dihydroergocornine ("DHO 180"), and the suppositories containing ergotamine tartrate, belladonna alkaloids (bellafoline®), and caffeine; Schering Corporation, Bloomfield, N. J., diethylcinnamamide ("P-51"), chlorprophenpyridine ("chlor-trimeton") maleate, testosterone propionate (oreton®), and alpha-estradiol benzoate (progynon®); Bilhuber-Knoll Corporation, Orange, N. J., methylisooctenylamine (octin®) mucate and bromisovalum and methylisooctenylamine (valoctin®); Abbott Laboratories, North Chicago, Ill., nicotinic acid; and Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y., vitamin B_{12}.

course over a definite period of time. Approximately one quarter of the patients had constant headache.

There was an overwhelming predominance (72%) of admitted emotional factors in our tension patients. It is the feeling of the physicians who made the diagnoses that emotional factors are present in 100% of the cases. In contradistinction to the situation in conversion headache, the ready and open admission of an emotional etiology by our patients is quite common. Contributing factors in the etiology of tension headache are shown in the following tabulation:

Emotions	287 (72%)
Fatigue	113 (28%)
Weather	96 (24%)
Menses	91 (23%)
Visual	66 (16%)
Other causes	155 (38%)

Forty-five per cent of our patients reported that their headaches involved several different parts of the head in either a generalized or migratory fashion. Only 20% had headaches limited to one site. This is in sharp contrast to migraine. The localization of the headaches is shown in the tabulation:

One site	79 (20%)
Two sites	130 (32%)
Multiple sites	179 (45%)
Occiput and neck	167 (41%)
Frontal	138 (34%)
Side of head and temples	115 (28%)
Diffuse generalized	95 (22%)
Vertex	82 (20%)
Eyes	44 (11%)
Face	16 (4%)

The majority of the patients with tension headache describe their pain as "dull," "throbbing," or "pressing." We note again, however, that the type of pain varies widely not only from patient to patient but also from time to time in the same patient. The principal types of pain are shown in the tabulation:

Throbbing	145 (22%)
Dull	143 (21%)
Pressing	117 (18%)

Analysis of Treatment.—Previous experience in our clinic suggested that certain therapeutic procedures might be most useful.[1] In choosing drugs for the present study we picked those which had previously shown most promise. The following drugs were used in the present study: Analgesics that were used included acetylsalicylic acid and a combination of acetylsalicylic acid, acetophenetidin and caffeine. Amobarbital (amytal®) sodium, phenobarbital, and *d*-amphetamine (dexamyl®) sulfate with amobarbital were used as sedatives. Analgesic and sedative combinations used were acetophenetidin, caffeine, acetylsalicylic acid and isobutylallylbarbituric acid (fiorinal®) and diethylcinnamamide ("P-51"). The following vasoconstrictors were used: dihydroergotamine methanesulfonate ("DHE 45"), a combination of belladonna alkaloids, ergotamine tartrate and phenobarbital (bellergal®), ergotamine tartrate and caffeine (cafergot®), methylisooctenylamine (octin®) mucate bromisovalum and methylisooctenylamine (valoctin®), and suppositories containing ergotamine tartrate, belladonna alkaloids (bellafoline®) and caffeine. Nicotinic acid was used as a vasodilator. Sympatholytic drugs that were given were the methanesulfonates of the ergotoxine alkaloids ("hydergine") and dihydroergocornine ("DHO 180"). Thiamine hydrochloride and vitamin B_{12} were given when vitamins were indicated. Antihistamine agents were chlorprophenpyridine ("chlor-trimeton") maleate and tripelennamine (pyribenzamine®) citrate, and histamine was also used. Testosterone propionate (oreton®) and alpha-estradiol benzoate (progynon®) were administered when hormone therapy was used.

Our patients were followed from one to four years. The results are summarized in charts 1 and 2. In a previous study of this type of headache [1] it was determined that favorable response to a placebo occurred in approximately 55% of the patients.

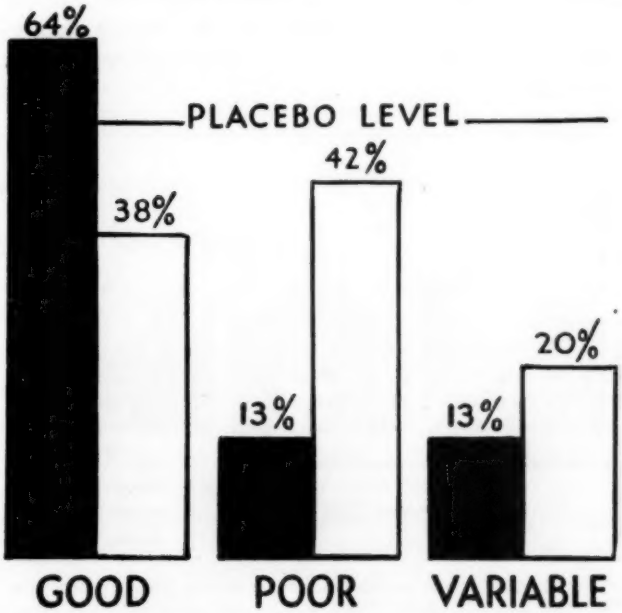

Chart 1.—Response of tension headache to symptomatic treatment. The black bar represents the percentage of patients who responded to analgesics or sedatives, and the white bar the percentage who responded to vasoconstrictors.

The most effective symptomatic medication was an analgesic and sedative combination, such as a combination of 0.05 gm. of isobutylallylbarbituric acid, 0.13 gm. of acetophenetidin, 0.04 gm. of acetylsalicylic acid, and 0.03 gm. of caffeine (fiorinal®). Vasoconstrictors were not very effective.

Psychotherapy was a more effective prophylactic measure than pharmacotherapy. As is apparent from the charts, we were impressed by the great variability in response to medication. When psychotherapy was used in addition to pharmacotherapy, our results were much more constant.

COMMENT

The course of events in tension headaches is not completely understood. The actual cause of this type of headache is unknown, but there is good evidence that the release mechanism is psychological. On the basis of

1. Friedman, A. P.; Brenner, C., and Carter, S.: Symptomatic Treatment of Certain Types of Chronic Headache, J. A. M. A. **139**: 195 (Jan. 22) 1949.

anatomical [2] and clinical data, we can hypothesize that the attack may begin with a discharge in the cerebral hemispheres that flows into the hypothalamus, with resultant changes in the caliber of certain cranial arteries. Probably associated with this neural mechanism are hormonal changes, which contribute to the headache. As pointed out by Ray and Wolff,[3] distension of the arterial circulation may cause headache. Distension may occur as a result of relaxation of the vessel wall or may be due to excessive intravascular pressure. This formula, however, is incomplete, for we are aware that arterial dilatation alone is insufficient to produce pain.[4] Hence, there must be other factors that alter the sensitivity of the blood vessel and its periarterial plexus. What these are and how they function awaits further investigation.

Another component of tension headache is the occurrence of sustained contraction of the muscles of the head and neck. Acting alone or in combination with the vascular mechanism, it may dominate the clinical picture. This mechanism was first pointed out by Simons and his colleagues.[5]

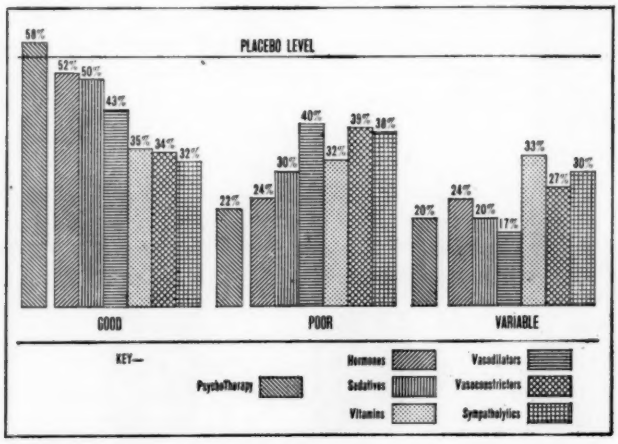

Chart 2.—Response of tension headache to various types of prophylactic treatment.

As with most headaches, a variety of psychogenic factors may be associated with tension headaches. In a majority of our cases the fundamental psychological factors were largely unconscious, although 72% were aware of their anxiety. Environmental demands of an economic and social nature beyond the capacity of the patient's personality may also produce somatic response, of which headache is the major reaction. The most frequently observed conflict in cases of tension headache were those over hostile impulses. These patients demonstrated aggression, hostility, and intense resentment against members of their family or persons who represented family figures. These were associated with feelings of guilt, which were then alleviated by headache. Identification may be one of the mechanisms in the production of pain. Such identification may represent a variety of unconscious conflicts. In other instances the major conflict concerned an unconscious wish to remain in a position of dependence. In still other cases the symptom was merely a means of gaining love, affection, or attention.

Although these findings help us to understand the mechanism of certain headaches, they do not elucidate the cause. Why the same psychogenic factors previously discussed as initiating headaches through physiological mechanisms may also produce them on a purely psychological level is unknown. Furthermore, the same type of psychological conflict may produce a variety of symptoms, such as headache, ulcers, and hypertension, or may be present in an individual who is symptom-free.

Our present knowledge indicates that emotional conflicts that the patient has suppressed or repressed because of their unpleasant nature may produce an end-organ discharge, either skeletal or autonomic, with resultant changes in the muscles and blood vessels of the head and neck. These muscular contractions and vascular dilatation, either directly or secondarily, become painful. The end organs for pain near these muscular and vascular changes are stimulated and create nerve impulses that pass along the afferent system to the central nervous system, where they are translated as painful sensations.

It would appear from our study that tension headaches often begin early in life, which indicates that these patients have well-established patterns toward emotional stress. This is a significant factor to remember in evaluating the therapy and prognosis of these patients. Having had headaches most of their active adult life, many patients cling to this symptom tenaciously.

Another characteristic of tension headache indicates that its frequency and duration are extremely variable. It is our assumption that this is a reflection of the patients' response to varying degrees and duration of emotional disturbances. Such responses are manifested within the organism by reactions of the autonomic nervous system, affecting among other things the cranial circulation.

Emotional factors were recognized by three-fourths of the patients as the precipitating cause of headache. This indicates that in most tension headaches the individual handles his emotional problems by specific physiological mechanisms that he is partially aware of. In contradistinction there are other individuals who disassociate their conflicts in a conversion mechanism and are unaware of the relationship of emotional stress and headache.

From our data it would appear that in contradistinction to migraine the best symptomatic treatment of tension headache was nonspecific. The best results were obtained with the use of an analgesic sedative combination, whereas vasoconstrictors were relatively ineffective.

As might be expected, placebos were effective in over 55%. Our experience has also indicated that the effectiveness of any medication depends to some extent on the physician-patient relationship and the amount of attention given the patient. There would appear, however, to be a considerable difference in the response of patients with migraine to placebos (25%).[6]

2. Papez, J. W.: A Proposed Mechanism of Emotion, Arch. Neurol. & Psychiat. **38**: 725, 1937. Cobb, S.: Emotions and Clinical Medicine, New York, W. W. Norton & Company, Inc., 1951.

3. Ray, B. S., and Wolff, H. G.: Experimental Studies of Headache: Pain-Sensitive Structures of the Head and Their Significance in Headache, Arch. Surg. **41**: 813 (Oct.) 1940.

4. Marcussen, R. M., and Wolff, H. G.: Therapy of Migraine, J. A. M. A. **139**: 198 (Jan. 22) 1949.

5. Simons, D. J.; Day, E.; Goodell, H., and Wolff, H. G.: Experimental Studies on Headache: Muscles of Scalp and Neck as Sources of Pain, A. Research Nerv. & Ment. Dis. Proc. **23**: 228, 1943.

6. Friedman, A. P., and von Storch, T. J. C.: Recent Advances in Treatment of Migraine, J. A. M. A. **145**: 1325 (April 28) 1951.

The best prophylactic treatment, as our previous studies suggested, was psychotherapy. From 30% to 50% of the patients responded favorably to almost any medication given them. Among these the most effective were the hormones (52%) and sedatives (50%), while the least effective were the sympatholytics (32%). The value of sedation in reducing emotional tension undoubtedly was another factor in improvement. The patients receiving hormones reported a feeling of well-being that probably played some part in their improvement. The continued use of either hormones or sedatives is not recommended.

The importance of psychological factors in the etiology of tension headaches makes psychotherapy a logical and valuable method of treatment. In some patients external stress is enough to explain the symptom of which they complain, but in a majority we have to look within the individual to discover the real sources of anxiety-producing conflicts. Our previous studies have indicated the importance of the relationship between the patient and the physician.[7] We must not, however, overlook other aspects of psychotherapeutic procedure, such as ventilation of wholly or partly unconscious emotional conflicts. Environmental manipulation is also helpful. Reassurance, suggestion, and reeducation are techniques that may help the patient gain the necessary security and readjustment to life. Approximately 60% of these patients who had the severest headache showed substantial alleviation of their symptoms by such a psychotherapeutic approach.

CONCLUSIONS

1. Tension headache is an emotionally induced physiological reaction to various situations productive of anxiety. 2. Three-quarters of the patients are aware of this relationship. 3. Tension headache may be differentiated from conversion, muscular, and vascular headache and from migraine. 4. It responds to placebos in over 50% of the cases. 5. The best symptomatic relief is obtained with analgesics and sedatives (64%). 6. The best prophylactic results are obtained by psychotherapy (58%). 7. The patient-physician relationship is of prime importance in the treatment of such headache.

71 E. 77th St. (Dr. Friedman).

7. Friedman, A. P.: Modern Headache Therapy, St. Louis, C. V. Mosby Company, 1951.

PROBLEM OF PAINFUL SHOULDER

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This paper on the painful shoulder is prompted not only by the frequency with which this phenomenon is encountered in medical practice but also in an attempt to eradicate some of the existing confusion regarding it. I will attempt to ascertain how diagnoses such as periarthritis, tendinitis, bursitis, adhesive capsulitis, and "frozen shoulder" apply and the position that periarthritis of the shoulder occupies in the entire picture of the painful shoulder. In this paper, periarthritis will be defined as pain and stiffness in the shoulder. Lack of full range of passive motion must be one criterion for diagnosis. Three forms or degrees of periarthritis will be recognized: (1) pain with definite but minimal stiffness, (2) pain with marked stiffness ("frozen shoulder"), and (3) the "shoulder-hand" syndrome. Definition of the other terms mentioned will be made in appropriate places. The initial cause of periarthritis is pain in the shoulder. Two other factors, however, must be present, disuse and a peculiar constitutional and emotional state that will be termed the "periarthritic personality." The basic concept of the entire problem of painful shoulder is one of identifying, if possible, the initial cause of shoulder pain, recognizing the complication of periarthritis if and when it develops, and treating it in an effective manner. This problem is portrayed graphically in figure 1.

CAUSES OF PAINFUL SHOULDER

It is not the purpose of this paper to discuss in detail the multiple causes of shoulder pain but to develop the thesis that regardless of the cause of the pain periarthritis may ensue. The causes of shoulder pain are myriad (see table). Most patients with painful shoulder do not pass into the periarthritic phase but either recover or remain with a chronically painful shoulder, without stiffness, for years. Disuse, plus the periarthritic personality, may result in periarthritis. The following causes of shoulder pain will be discussed in some detail because of their special interest as inciting causes of periarthritis.

Degeneration of Shoulder Cuff and Long Head of Biceps Tendon.—Codman,[1] in his book on the shoulder, elucidated for the first time the degenerative changes that occur in the tendons of the supraspinatus, infraspinatus, teres minor, and subscapularis muscles as they attach by a common conjoined tendon to the greater tuberosity of the humerus, the so-called musculotendinous or rotator cuff of the shoulder. Calcareous deposits, partial rupture of the supraspinatus tendon, and complete tears of the shoulder cuff may all be results of degeneration. These lesions constitute the most common causes of shoulder

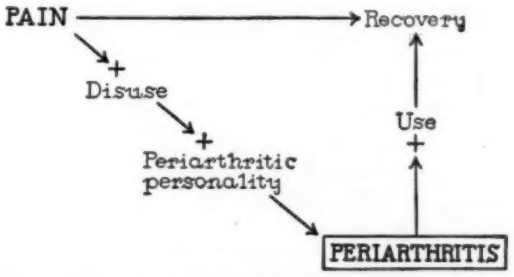

Fig. 1.—Diagram of the concept of the problem of painful shoulder.

From the Section of Orthopedic Surgery, Mayo Clinic.

Because of lack of space, some of the bibliographic references have been omitted. They will appear in the author's reprints.

Read before the General Scientific Meetings at the 101st Annual Session of the American Medical Association, Chicago, June 13, 1952.

pain. The basic reason for this degeneration or attrition is man's upright posture. This causes strain in the form of gravitational force on the shoulder tendons and friction on tendons of the shoulder cuff because of their

Causes of Shoulder Pain

I. Musculoskeletal
- A. Degenerative lesions of the rotator cuff (Codman [1])
  - 1. Tendinitis
  - 2. Calcareous deposits
  - 3. Rupture of supraspinatus
  - 4. Complete rupture of cuff

  } "Subacromial bursitis"
- B. Tenosynovitis of long head of biceps
- C. Inflammatory lesions of the shoulder
  - 1. Rheumatoid arthritis and its variants
  - 2. Specific arthritis: tuberculous, septic
- D. Trauma
  - 1. Fractures
  - 2. Dislocations
  - 3. Contusions (often minor)
  - 4. Acromioclavicular separation
- E. Occupation ("overuse"): farmers, machine workers, etc. (a combination of degeneration and trauma)
- F. Posture: neck and shoulders. Related to lesions of the nerve roots and the brachial plexus
- G. Tumors
  - 1. Soft tissue
  - 2. Bony
- H. Immobilizing lesions of the entire upper extremity: Colles' fracture, hemiplegia, after removal of breast, etc.

II. Neurological (Eaton [11])
- A. Central nervous system
  - 1. Syringomyelia
  - 2. Intramedullary tumors
- B. Peripheral nervous system
  - 1. Nerve roots
    - a. Inflammation
    - b. Degeneration
      - (1) Protruded intervertebral disk
      - (2) Osteoarthritis with encroachment on the intervertebral foramen and pressure on the nerve roots
    - c. Extramedullary tumors, including metastatic growths
    - d. Traumatic lesions of the cervical part of the spinal column
  - 2. Brachial plexus
    - a. Mechanical factors excluding trauma
      - (1) Cervical rib syndrome
      - (2) Scalenus syndrome
      - (3) Subcoracoid pectoralis minor syndrome
      - (4) Costoclavicular syndrome
      - (5) First thoracic rib syndrome
    - b. Traumatic
      - (1) Penetrating and lacerating wounds
      - (2) Sudden traction
    - c. Tumors, including those of the superior pulmonary sulcus
    - d. Inflammatory lesions
    - e. Serum paralysis
  - 3. Lesions of peripheral nerves

III. Visceral (reflex and referred pain)
- A. Thoracic
  - 1. Cardiac disease
  - 2. Esophageal spasm
  - 3. Diaphragmatic irritation
  - 4. Sternal lesions
- B. Abdominal
  - 1. Disease of the gallbladder and liver
  - 2. Pancreatic disease
  - 3. Ruptured viscus

IV. Peripheral vascular (Barker [2])
- A. Occlusive arterial disease, sudden or chronic
- B. Raynaud's disease and allied disorders
- C. Arterial aneurysm
- D. Arteriovenous fistula
- E. Phlebitis; acute or chronic insufficiency
- F. Lymphangitis; acute, diffuse, or chronic lymphedema

relationship to the acromion process and the coracoacromial ligament. The complete tear of the rotator cuff, however, seldom causes stiffness in the shoulder, as Codman [1] and McLaughlin and Asherman [3] have mentioned.

2. Barker, N. W.: Pain in the Upper Extremity Caused by Peripheral Vascular Disease, S. Clin. North America **26**: 806-809 (Aug.) 1946.

This is probably caused by free intercommunication of joint fluid between the joint proper and the subacromial bursa, preventing capsular adhesions. Partial tears of the cuff can and do create periarthritis with true adhesions and stiffness, given the added factors of disuse and a periarthritic personality.

It is probable, however, in light of further experience, that Codman overemphasized the role of the subacromial bursa. It would seem that bursitis of the shoulder is the result of these degenerative lesions of the cuff and a secondary phenomenon. Withers [4] has compared the subacromial bursa to the peritoneum, stressing that inflammation of the bursal sac is analogous to peritonitis, which is not as a rule a primary pathological state but a result of visceral disease. Thus, bursitis is a result of involvement of the shoulder tendons because of the intimate relationship of the bursa to the cuff and the long head of the biceps tendon.

That degenerative changes in all components of the shoulder joint occur early and may be extensive has been

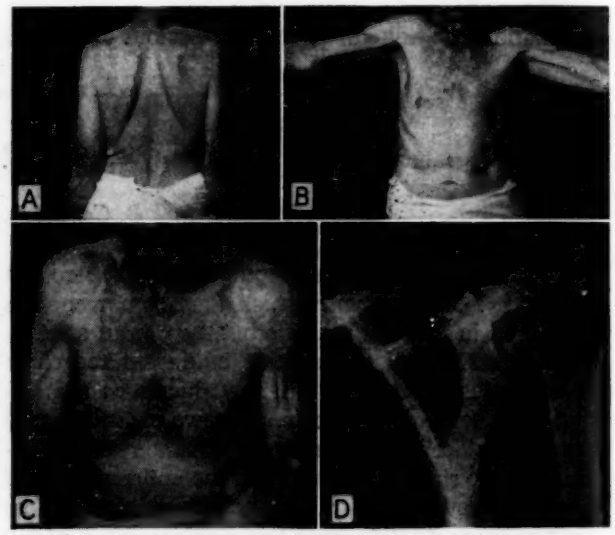

Fig. 2.—A farm worker, aged 66 years, with rupture of the right shoulder cuff. *A*, atrophy of supraspinatus and infraspinatus muscles. *B*, range of active abduction. *C*, rupture of the long head of the biceps tendon on the left ("bunching" of muscle). *D*, osteoarthritis of the left shoulder joint.

well shown by DePalma and his co-workers.[5] Cuff lesions are, therefore, secondary to degeneration and are due to attrition and are not primarily inflammatory.[6] Trauma plays an indefinite and minor role. The situation is analogous to protrusion of the intervertebral disk when the basic cause is degeneration, and trauma is simply an aggravating factor.[7] What has been said concerning the role of the shoulder cuff as a cause of shoulder pain can be applied to the degenerative change in the tendon of the long head of the biceps. While seen less commonly, such change constitutes a definite entity.[8] The following case is illustrative of degenerative changes as a cause of shoulder pain.

CASE 1.—A 66-year-old farm worker came to the Mayo Clinic with the chief complaint of weakness and pain in both shoulders. The weakness had been present for several years, the pain only during the past month. Examination revealed atrophy of the supraspinatus and infraspinatus regions (fig. 2*A*). He was unable to initiate abduction of the right arm, but could actively abduct the left 50 degrees. He could maintain 80 degrees of ab-

duction of the right arm if aided in the initial motion (fig. 2*B*). Passive abduction was almost complete bilaterally. There was deformity of the left biceps brachii muscle, with "bunching" of the muscle distally (fig. 2*C*). Roentgenograms of the left shoulder showed osteoarthritic changes (fig. 2*D*). A diagnosis of complete rupture of the right shoulder cuff, of the left supraspinatus tendon, and of the tendon of the long head of the left biceps brachii muscle was made. These ruptures were felt to be of long duration, attritional in nature, and aggravated by his occupation of farming. No appreciable stiffness was present in either shoulder and therefore no periarthritis as I have defined it.

Occupational Causes.—Painful shoulder develops in persons in certain occupations more commonly than in others, and a careful occupational history will often disclose the cause of the condition when otherwise it is obscure. I have observed development of pain in the shoulder of farmers after an arduous day of filling silo and in the shoulder of a worker in an overalls factory. The work of the latter person consisted in throwing sewed overalls over her shoulder hundreds of times a day. The pain in both cases was probably an attritional tendinitis of the cuff and in both cases was followed in several days by periarthritis. A baker with bilateral degeneration of the shoulder cuff and tears of both supraspinatus tendons was recently seen. He worked eight hours a day with his shoulders flexed and abducted as he decorated cakes. Occupational factors are a combination of degeneration and traumatic causes.

Immobilizing Lesions.—As Ghormley [9] has emphasized, painful shoulder may result from "any condition requiring prolonged fixation of the shoulder joint." The relative immobilization of the shoulder following Colles' fracture is such an example. In the average patient, the stiffness in the shoulder will work out a few days after the cast is removed. If the patient has a periarthritic personality and the disuse factor is allowed to operate, true periarthritis may develop. Immobilization of the shoulder after radical mastectomy is a similar situation. Often, pain is present only after use of the shoulder is attempted. The initial immobilization causes stiffness, which in turn causes pain when use is attempted, then more stiffness as pain increases. To help prevent stiffness the shoulder should be exercised actively and early whenever a cast or other immobilizing bandage is placed on any part of the upper extremity below the shoulder joint.

Irritation of a Nerve Root.—The initial cause of shoulder pain, in turn leading to periarthritis, may often be irritation of a cervical nerve root. There may be no history of injury. The results of general physical examination and of roentgenographic examination of the shoulder may be negative. A degenerative lesion of the cuff cannot be diagnosed, but a careful history will frequently elicit evidence that "stiff necks" or "cricks in the neck" have occurred in the past. With the "stiff necks" the patient may or may not have had pain of the upper extremity. The pain may have been localized to the region of the deltoid muscle, the scapula, or the pectoralis major muscle. Objective evidence of irritation of a nerve root may be present, but frequently the results of examination of the central nervous system are normal. Paresthesias may be present, and "trigger points" may be found. Roentgenograms of the neck will frequently show narrowing of a disk, marginal spur formation, or encroachment on an intervertebral foramen,[10] but often these changes are minimal.

Codman did not feel that cervical radiculitis was ever the cause of periarthritis. He stated that it might cause shoulder pain but not stiffness. He also stated that this was true of the cervical rib syndrome. With this I cannot agree. Repeated observations have shown that the initial pain in the shoulder may be caused by irritation of a cervical nerve root. Posture and occupation are of importance in the causation. Many of these patients work or read with their necks flexed forward, increasing the stress on the cervical nerve roots. One should not oversimplify the problem and consider that all cervical radicular pain is caused by protrusion of an intervertebral disk, but this probably accounts for most instances of this type of disturbance.[11] Like patients who have the more familiar protrusion of a disk in the lumbar region, many patients who have protrusion of a cervical disk do not show objective signs in the early stages or during relative remissions.

Treatment of cervical radiculopathy depends on the cause and the severity of the symptoms. Often simple correction of the postural factors will result in relief of pain. Cervical traction is also useful, and protrusion of a cervical disk may occasionally require surgical treatment.

The following case illustrates periarthritis of the shoulder, the initial pain probably being caused by cervical radiculopathy. Periarthritis developed because of disuse plus a periarthritic personality. It emphasizes the need of a careful history, of roentgenograms of the cervical part of the spinal column, and of correlation of the history with the roentgenologic findings. Many patients exhibit cervical degenerative changes, and one should not make the diagnosis of cervical radiculopathy except by a process of careful evaluation with elimination of other possible causative factors.

CASE 2.—A 48-year-old married schoolteacher was seen at the Mayo Clinic complaining of pain and stiffness of the right shoulder and migraine. She stated that five months before admission persistent pain had developed in the right shoulder in the deltoid and upper triceps regions. This pain extended into the scapular region and down the entire arm, with occasional aching in the forearm and hand. The pain was aggravated by motion of the shoulder, and therefore use of it was avoided as much as possible. Partial relief of pain was obtained with acetylsalicylic acid (aspirin) and local application of heat. Roentgen therapy to the shoulder was administered at home without any appreciable effect. She had not been advised to use her shoulder. She had noticed some stiffness and slight swelling of the fingers of the right hand on arising in the morning, which was relieved by motion. She had also noticed some fleeting pain in the left shoulder during the last two months.

Careful questioning revealed that she had noticed neck pains over the course of several years, with occasional "cricks" and attacks of stiff neck lasting about a week, the pain extending into the upper anterior portion of the thorax. She stated that at the age of 20, or approximately 27 years previously, she had dived into a shallow pool, struck the bottom, and injured her head and neck, the latter remaining painful for several weeks. Five months before I saw her she had taken a job as a typist, which was not her customary work, and she sat for hours at a time in the usual typing posture.

Examination disclosed that all motions of the neck were slightly restricted and painful on extremes of motion. There

10. Oppenheimer, A.: The Swollen Atrophic Hand, Surg., Gynec. & Obst. 67: 446-454 (Oct.) 1938.

11. Eaton, L. M.: Neurologic Causes of Pain in the Upper Extremities, with Particular Reference to Syndromes of Protruded Intervertebral Disk in the Cervical Region and Mechanical Compression of the Brachial Plexus, S. Clin. North America 26: 810-833 (Aug.) 1946.

was slight atrophy of the shoulder girdles. She was able to abduct the right shoulder actively to 80 degrees (fig. 3*A*). There was a 70% limitation of rotation. There were no trigger points of pain, although there was diffuse tenderness over the deltoid region. The hand and fingers were slightly swollen, but neither color changes nor excessive sweating was noted, and she could almost make a full fist. Roentgenograms of the shoulder did not disclose any abnormality. Roentgenograms of the cervical portion of the spinal column showed marked narrowing between the fifth and sixth cervical vertebrae (fig. 3*B* and *C*). The neurological examination revealed some areas of hypesthesia on the right arm and forearm, but there were no other findings.

The diagnosis of periarthritis of the right shoulder with early involvement of the hand (shoulder-hand syndrome) was made. The cause of the original pain in the shoulder was thought to be cervical radiculopathy, occurring secondary to degenerative changes and protrusion of a disk. The patient's occupation, which involved typing, was a precipitating factor. She was tense, a perfectionist, and hyperemotional. Her family history disclosed much emotional trauma. Pain coupled with disuse and a periarthritic personality resulted in periarthritis of the shoulder with involvement of the hand.

Visceral (Reflex) Pain.—Much has been written to date concerning the role of cardiac pain in periarthritis, including the shoulder-hand syndrome. This will be discussed more fully under the disuse theory of periarthritis.

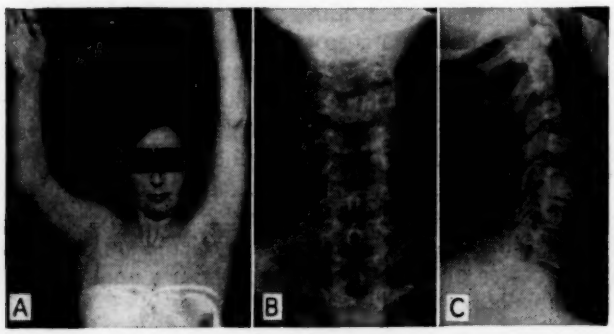

Fig. 3.—Schoolteacher, aged 48 years, with periarthritis of the right shoulder. *A*, range of abduction. *B* and *C*, anteroposterior and lateral roentgenographic views of the cervical part of the spinal column. Osteoarthritic changes are present at the interspaces between the fifth and sixth, and sixth and seventh cervical vertebrae.

Smith and I [12] feel that, although the initial pain in the shoulder may be cardiac in origin, it is probably relative disuse rather than actual stimulation of sympathetic nerves by cardiac pain that precipitates the reflex dystrophy. Coronary insufficiency, with or without myocardial infarction, and some aortic aneurysms, may cause pain of either shoulder. This pain makes the patient afraid to move the affected extremity, and because of this disuse, the phenomenon of periarthritis results. Pain from the gallbladder or pancreas may be referred into the shoulder. Dunlap and Ivins [13] have encountered two patients with painful shoulder caused by osteoarthritis of the sternum at the manubrium-corpus junction, and one patient with pain that was referred from a fractured xiphoid process.

REASONS FOR SHOULDER PAIN CAUSING PERIARTHRITIS

As mentioned previously, the painful shoulder passes into the stage of periarthritis only if two factors are operating, disuse and the psychosomatic changes found in the periarthritic personality.

12. Smith, H. L., and Coventry, M. B.: Unpublished data.

The Periarthritic Personality.—Space does not permit a thorough discussion of the psychiatric aspects involved in the periarthritic personality. Rome [14] has described the psychosomatic approach to this problem in detail. We have observed that persons of a certain personality type are prone to experience periarthritis. Codman, while admitting that patients with painful shoulder tend to be more "nervous" than others, felt that the nervous state was more a result of the continued pain and possible compensation and litigation aspects connected with it. Patients with periarthritis of the shoulder in any of its manifestations do have certain constitutional and emotional factors in common. One is struck by their passive, apathetic attitude. At the same time they exhibit muscular tenseness and hyperirritability. They seem to lack the ability to tolerate pain as well as other persons and show an exaggerated response to pain stimulation. They are hyperemotional and show hyperactive vasomotor responses. They expect someone else to get them well and refuse to take the initiative in their recovery, a manifestation of their passivity; for example, they would rather be massaged than to take active exercises. The periarthritic personality is, according to Rome, a result of a "poised indecisiveness," an inability to express tension freely. The patient then becomes hung up on "dead center," in a state of disuse.

The following patient illustrates the periarthritic personality and demonstrates how it is essential in the development of periarthritis. Certain relevant features of the patient's treatment will be included for completeness, but the factors of treatment of periarthritis will be discussed later.

CASE 3.—A lumber warehouseman, aged 52 years, came to the Mayo Clinic because of pain in the arms and shoulders. He stated that five months previously he had felt a sudden pain, "like a bug crawling on my skin." The pain was in the left hand, the left shoulder, across the chest, and down the right arm. This feeling soon disappeared, and the following day he was completely asymptomatic. Three days later he had sudden pain in the center of his chest, requiring a hypodermic injection for relief. He became tense and anxious because of this pain and felt he was unable to get his breath. He was hospitalized elsewhere for several days. Since the original episode he had had several attacks of pain characterized by this "crawling" feeling in the chest and arms. He gradually became unable to move either shoulder and noticed stiffness in the neck, elbows, and hands. The pain was never related to effort. He had been told by four physicians that he had "heart trouble." Besides these complaints he stated he had dizzy spells, headache, and a feeling of weakness.

Examination revealed inability to abduct the shoulders actively beyond 90 degrees; passive movement beyond this caused him much pain. He seemed passive and unable or unwilling to describe his symptoms carefully. The results of examination of the heart, including electrocardiographic examination, were negative. The sedimentation rate was 18 mm. in one hour (Westergren). Roentgenograms of the shoulders did not disclose any abnormality. Roentgenograms of the cervical portion of the spinal column showed osteoarthritic changes with narrowing of the space between the fourth and fifth cervical vertebrae (fig. 4). The diagnosis of periarthritis of the shoulders was made. The patient was placed on a program of heat and exercise of both shoulders, and he returned home.

Ten months later, when the patient was examined, the pain in the chest had disappeared. The pain in the right upper extremity was more intense, and there was less motion in both shoulders. Pain in the neck was also severer. The pain did not extend beyond the elbow in either extremity. On examination,

the patient was passive, lethargic, and apprehensive. Any motion of the neck or of the shoulders caused a peculiar jerking, grimacing response to pain. Abduction of the shoulders was limited to 80 degrees. Rotation was limited to 25%. The right hand and fingers were slightly and diffusely swollen, but there was no color change or palmar fibrosis. The patient could almost make a full fist but had a moderately weak grip. Roentgenograms on this visit showed no change from those taken previously. Electrocardiographic tracings did not suggest the presence of any abnormal condition. The sedimentation rate was 13 mm. (Westergren).

The diagnosis of periarthritis of the shoulders with early shoulder-hand syndrome on the right was made. The patient was again told that he did not have heart trouble. Cortisone was then used as an adjunct in his treatment, as heat, massage, and exercises had been tried before without apparent benefit. Two days later he said he was much better and he felt less pain. The range of motion had improved 50%. Improvement continued, and four days after administration of cortisone had been started, there was full abduction in the left shoulder, and the right shoulder lacked only the last 15 degrees of abduction. The dosage of cortisone was then decreased. One week later, examination indicated that the right shoulder still lacked a few degrees of motion. The patient estimated that his pain was relieved by 50% since the onset of treatment. Objectively, the relief seemed greater.

One evening after the patient left Rochester and while he was still being given cortisone (25 mg. twice a day orally) an episode of acute mania, characterized by screaming and disorientation, occurred. He did not lose consciousness, but he had a severe headache. His physician gave him a sedative, and he was examined at the Mayo Clinic two days later. The results of a preliminary neurological examination were negative. A résumé of the psychiatric findings showed that the patient's education had progressed to the sixth grade, at which time he quit school at the age of 16. He had been married twice. He confessed that he worried about his heart and said he felt tense and unable to sleep. His libido and potency had completely disappeared. He had discussed suicide with his wife for two months prior to the present examination, and he had cried on several occasions. He felt his memory and concentration were becoming poor. The consultant in psychiatry thought that psychologically he was the type of person who was prone to experience the disability of which he complained and as a result had become markedly dependent, hostile, and incapable of assuming any personal responsibility for his own care. His dependent proclivities were evidenced by his reaction after his first wife's death. Emotional conflicts were profound, and prolonged, intensive therapy would be required even to palliate them. The diagnosis was character neurosis with depression. It was felt that cortisone may have aggravated the neurosis, so use of it was discontinued.

Psychotherapy was instituted in the hospital and after a week the patient was permitted to return home. One month later abduction of the right shoulder was still limited about 15 degrees, but the shoulder was painless. The left shoulder was normal. There was no involvement of the hand. He was still emotionally disturbed, tense, and complained of occasional headaches.

This patient is representative of the periarthritic personality type. His emotional make-up was aggravated by the worry that he had heart disease. Disuse resulted, in turn causing periarthritis with involvement of the hand (shoulder-hand syndrome).

Role of Disuse.—Many observers have noted the importance of disuse as a causative factor in periarthritis. Neviaser [15] stated that disuse was the common denominator in the etiology of periarthritis, which he termed "adhesive capsulitis." Simmonds [16] recognized this pattern when he stated that pain resulted in rest, which resulted in capsular inelasticity, which resulted in stiffness of the shoulder. Periarthritis, including one of its forms, the shoulder-hand syndrome, is, in all probability, a disuse state. As such it is the basic condition also known as reflex sympathetic dystrophy, disuse syndrome, and minor causalgia, Sudeck's atrophy, post-traumatic state, traumatic osteoporosis, peripheral trophoneurosis, and chronic traumatic edema. De Takats,[17] in 1937, coined the term "reflex dystrophy" and "sympathetic" was added later. De Takats expressed the belief that reflex sympathetic dystrophy was a vasomotor and trophic phenomenon and that it was a state of reversal from a normal vasomotor reaction. This reversal is brought about by a changed state either of the peripheral nerves or of the higher centers. He ascribed reflex sympathetic dystrophy to chronic irritation of sensory pathways. The three sensory levels he described were peripheral, spinal, and cortical.

The symptoms of reflex sympathetic dystrophy are usually burning pain, redness or pallor of the fingers, hand, and sometimes forearm (or foot and leg), sweating, atrophy of the skin and muscle, and sometimes atrophy of bone. The shoulder alone may be involved and the site of symptoms, without the condition progressing down the extremity to the hand.

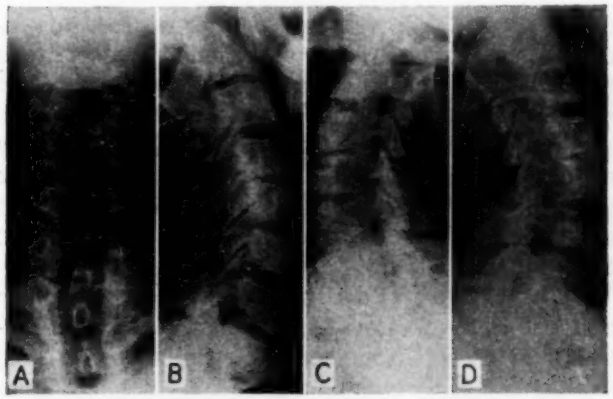

Fig. 4.—Lumber warehouseman, aged 52 years, with periarthritis of both shoulders. *A*, *B*, *C*, and *D*, anteroposterior, lateral, left oblique, and right oblique views of the cervical portion of the spinal column. There is narrowing between the fourth and fifth cervical vertebrae, with osteoarthritic lipping.

De Nó [18] described the internuncial pool in the spinal cord as the mechanism of reflex sympathetic dystrophy. Sensations from the periphery pass to this pool. The neurons in the pool communicate with each other and may re-excite one another, thereby maintaining activity within the cord for more prolonged periods of time. Stimuli are thus maintained from the initial painful lesion. This stimulation is expressed peripherally by the motor and neurovascular signs and symptoms that constitute the clinical picture of reflex dystrophy.[19] One can carry this theory further to include the "vicious circle," although Livingston [20] has stated that the theory of the internuncial pool does not necessarily imply a vicious circle or "whirlpool" effect. The vicious circle of pain in the shoulder causing restriction of motion, in turn causing reflex sympathetic dystrophy, aggravating pain, and further producing limitation of motion, is a perfectly understandable vicious circle. This vicious circle may operate in the usual case of periarthritis.

19. Steinbrocker, O.; Spitzer, N., and Friedman, H. H.: The Shoulder-Hand Syndrome in Reflex Dystrophy of the Upper Extremity, Ann. Int. Med. **29**: 22-52 (July) 1948.

Extremities immobilized with casts, splints, or bandages frequently become stiff in the absence of pain. Pain, it is true, usually begins when attempts are made to restore motion in parts temporarily stiffened. Stiffness and pain usually subside without development of the typical picture of reflex sympathetic dystrophy; however, if the patient has a periarthritic personality and pain develops during or after splinting, true periarthritis in any of its forms may develop.

The shoulder-hand syndrome is a form of periarthritis, as Askey [21] suggested in 1941, and it is probable that the stiffness in the shoulder seen in periarthritis is also an example of reflex sympathetic dystrophy. The capsular fibrosis and adhesions may all be due to sympathetic disturbance. I have observed patients with periarthritis who had definite puckering and fibrosis of the skin about the shoulder comparable to skin on the palm of the hand in patients with Dupuytren's contracture. If these fibrotic changes in the shoulder are the result of reflex sympathetic dystrophy, they are not caused by specific inflammation in the bursa, capsule, or tendons but are secondary to inflammation of a vasomotor nature. The rapid onset of Dupuytren's contracture of the palm in some patients with periarthritis with shoulder-hand syndrome is certainly striking, and similar fibrotic effects may occur in the capsule and adjacent tissues of the shoulder. In 1934, Powers [22] expressed the opinion that Dupuytren's contracture was caused by hyperexcitability of the sympathetic nervous system caused by past or present visceral disease. It is probable that the adhesions that cause the stiffness in periarthritis are at least in part caused by reflex sympathetic dystrophy.

Reflex sympathetic dystrophy may progress down the arm and involve the elbow, forearm, and hand. Extremes of forearm rotation are invariably painful and slightly restricted in the shoulder-hand syndrome. Steinbrocker, Spitzer, and Friedman [19] recognized three stages of the shoulder-hand syndrome. The first stage occurred during the first three to six months and was characterized by painful shoulder with subsequent swelling, pain, and stiffness of the hands and fingers. Swelling, pain, and stiffness of the fingers may occur early in the disease, actually in a matter of days; case 4 illustrates this. The second stage was described as the resolution of stiffness and swelling. At this stage Dupuytren's contracture appeared. The third stage was described as that of progressive changes in the hand as the swelling disappeared.

Askey felt that the shoulder-hand syndrome was seen most commonly in patients with coronary occlusion. He postulated that myocardial ischemia produced pain, in turn stimulating the sympathetic nerves. This stimulus coupled with pre-existing osteoarthritis of the shoulder caused stiffness of the shoulder and palmar fibrosis and contracture. He attributed this to a direct reflex stimulation from the myocardial ischemia and pain. I feel that sympathetic changes may be caused by disuse in a patient with a periarthritic personality and not by direct stimulation of the sympathetic pathways by the cardiac nerves. At any rate, periarthritis develops in only a small percentage of patients with acute myocardial infarction, and these persons are observed to be apprehensive and passive and to have a low tolerance for pain, all typical signs of the periarthritic personality.[12] Pain from whatever cause plus disuse plus the periarthritic personality equals periarthritis.

TREATMENT OF PERIARTHRITIS

The first stage in initiating proper treatment of periarthritis of the shoulder is its early recognition and its treatment as a form of reflex sympathetic dystrophy. If disuse is the basic cause of periarthritis, one would reason that the only treatment necessary is to obtain use of the extremity. This, in fact, is the main endeavor, and all treatment is directed toward this end. It is basically hindered, however, by the resistant periarthritic personality. Although most patients who have periarthritis eventually recover from the stiffness without specific treatment, this recovery period may at times be as long as two or three years, and occasionally the condition progresses to the point of no return, and function can never be regained. One must also remember that the original cause of the pain will not be cured by use if that cause is, for example, tear of the musculotendinous cuff, coronary infarction, or cervical radiculitis. Use will remove only the stiffness. Logically, the earlier the stimulus for use is applied the better will be the result. Treatment with use is effective in any of the three types of periarthritis: pain with minimal stiffness, "frozen shoulder," or shoulder-hand syndrome. The duration of the recovery period is prolonged according to the severity of the periarthritis, the time of onset of treatment, the adequacy of treatment, and the cooperation of the patient. The following factors or methods are means of bringing about use of the extremity and overcoming the dystrophic state.

The Will to Recover.—The will to recover varies in different persons and is seldom a strong factor in the periarthritic personality type. It is a complicated psychiatric problem and can be mentioned only briefly in this paper. The will to get well results in the recovery of many persons. A turning point occurs during their illness when the will to recover dominates their passivity. If the patient will put up with his pain in order to recover, he will get well. The stronger the will to use the painful shoulder and the greater the ability to stand pain the sooner will be the recovery.

Spontaneous Recovery.—Pain gradually diminishes in most persons, and eventually the patient regains use of the extremity. The cause of this spontaneous recovery is not definitely known. The recovery process may take months or years, and the physician is hardly justified in (*a*) assuming that every patient will recover (one cannot select ahead of time the patients who will get well), and (*b*) allowing recovery in a certain amount of time (nine months for example) when with treatment recovery may be effected in much less time with a resulting decrease in duration of pain and disability.

Analgesic Drugs.—Frequently, the use of salicylates, occasionally with codeine in severe cases, will alleviate enough pain to allow the patient to start using the shoulder. Salicylates in the form of acetylsalicylic acid should be prescribed freely. Narcotics should be avoided, with rare exceptions. Periarthritis is a chronic disease, and the type of personality dealt with precludes the use of morphine and similar drugs.

Physical Medicine.—The most useful physical means of recovery is active exercise supervised by a competent physiatrist. Various methods and types of exercises are available, and their use depends on the stage of recovery. Massage and heat may be used as supplementary forms of treatment, but any passive form of treatment tends to make the patient more dependent. If the original cause of the shoulder pain is cervical radiculopathy, cervical traction by use of a head sling or halter will frequently relieve this pain and subsequently allow more use of the extremity. Roentgen therapy has been helpful in treatment of the acutely painful shoulder, especially calcareous tendinitis, but seems to be of little value in the chronic form of periarthritis.

Cortisone.—This relatively new hormone warrants more thorough discussion. It has been of inestimable value in the treatment of the painful shoulder. The beneficial effect of cortisone and corticotropin in rheumatoid arthritis and especially in the soft periarticular tissues of this and other so-called collagen diseases gave early promise of benefit to patients with periarthritis of the shoulder.[23] This has been substantiated by preliminary observation of 10 patients with periarthritis of the shoulder reported on in February, 1951.[24] It is not possible to elucidate the exact mechanism of the action of cortisone. Further observations have not been any more helpful in this respect, but it does seem that cortisone acts as a stimulus. It may be helpful in "greasing the psychological skids," encouraging use.[25] With this use comes recovery. The use of cortisone has resulted in improvement, usually marked, in periarthritic patients.

Indications for Use of Cortisone.—Five to seven days of supervised active exercise is started empirically in all cases of periarthritis to evaluate the response to pain, willingness to cooperate, and severity of the disease. If definite improvement is noted at the end of a week, as is usually the case, cortisone is not used. If, however, improvement is slight or absent, cortisone is then used as supplemental treatment. Each case varies as to the cortisone dosage and response and must be carefully individualized. The patient is started on treatment, with 75 mg. a day given orally in divided doses. Physical therapy is continued while the cortisone is being given. The pain-relieving effect of cortisone usually becomes apparent within 24 hours, but increase in motion is usually not noticed for about three days. The first indication is that the patient sleeps better at night, and the next is that he can perform certain functions, such as combing his hair, with a little more ease. The dosage of 75 mg. a day is continued until the pain and stiffness are definitely relieved, which usually takes from one to three weeks. The dose of cortisone can then be decreased to 50 mg. a day for the following week and then 25 mg. a day for the week after that. During the period of medication active exercises must be continued and encouraged. The prolonged administration of cortisone in patients with periarthritis is not advisable; hence, the dangers of using cortisone from two to five weeks in the dosage usually employed are minimal.

The only complication that my colleagues and I had in treating more than 50 patients with periarthritis with cortisone was a psychiatric problem (case 3). One should be cognizant of the possibility, however, that cortisone therapy may aggravate a peptic ulcer or that it may mask an intercurrent infection. If it is given over a prolonged period, a practice not to be recommended in periarthritis, features of hypercortisonism may become manifest. An early sign of this is peripheral edema. Surgical procedures during or after its administration are potentially dangerous because of the possibility of functional inadequacy of the adrenal cortex, with resulting shock. The patient should be fully protected from such inadequacy with sufficient amounts of cortisone given before, during, and after operation. Cortisone may also aggravate diabetes or convulsive disorders.[26]

Limitations of Cortisone.—Cortisone, like any form of treatment, has its limitations in treatment of periarthritis of the shoulder. It is an adjunct to treatment, not in any way a cure. It acts as a stimulus that changes the shoulder from a state of disuse to one of use and helps the muscles of the upper extremity to regain tone, strength, and circulation. Some orthopedists prefer to combine cortisone with manipulation, giving it before and after surgical treatment. In our experience, however, manipulation has seldom been necessary, even for the completely frozen shoulder. The patient will slowly mobilize his shoulder by active exercise, with or without the use of cortisone, as indicated. Case 1 in a previously reported series [24] is such an example (fig. 5). This patient had a frozen shoulder, with an estimated 15 degrees of

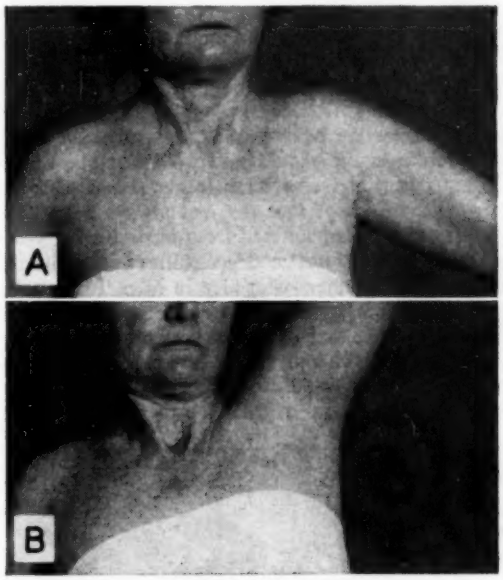

Fig. 5.—Housewife, aged 55 years, with periarthritis of the left shoulder. The range of motion before and three months after treatment with cortisone is shown. (Reproduced with permission from Coventry, M. B.: The Use of Cortisone in the Treatment of Periarthritis of the Shoulder, in American Academy of Orthopedic Surgeons, Instructional Course Lectures, Ann Arbor, Mich., J. W. Edwards, 1951, vol. 8, pp. 77-84.)

23. Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: Effects of Cortisone Acetate and Pituitary ACTH on Rheumatoid Arthritis, Rheumatic Fever and Certain Other Conditions: A Study in Clinical Physiology, Arch. Int. Med. **85**: 545-666 (April) 1950. Ward, L. E., and others: Clinical Effects of Cortisone Administered Orally to Patients With Rheumatoid Arthritis, Proc. Staff Meet., Mayo Clin. **26**: 361-370 (Sept. 26) 1951.

24. Coventry, M. B.: The Use of Cortisone in the Treatment of Periarthritis of the Shoulder, in American Academy of Orthopedic Surgery, Instructional Courses, edited by W. B. Blount and S. W. Banks, Ann Arbor, Mich., Edwards Brothers, Inc., 1951, vol. 8, pp. 77-84.

25. Rome, H. P.: Personal communication to the author.

26. Sprague, R. G., and others: Observations on the Physiologic Effects of Cortisone and ACTH in Man, Arch. Int. Med. **85**: 199-258 (Feb.) 1950.

scapulohumeral motion. The periarthritis followed fracture of the surgical neck of the humerus, and it had been present for three months. After five days of treatment with cortisone (100 mg. per day given intramuscularly) most of the pain disappeared, and in the course of the subsequent three months the patient regained full range of motion without professional physical therapy or manipulation. Two years after her original periarthritis she has maintained complete freedom from pain.

The shoulder-hand syndrome with palmar fibrosis and stiffening of the fingers is admittedly the most difficult to treat. In these cases, cortisone has been found to be of particular value. If the condition can be diagnosed early, cortisone will often reverse the pattern and allow for rapid recovery. In shoulder-hand syndrome of long standing it is naturally of less value and may not be indicated. The use of cortisone in the shoulder-hand syndrome is illustrated in the following case.

CASE 4.—A 71-year-old housewife consulted the Mayo Clinic because of pain and swelling of the hands of three weeks' duration. She stated that she had had no pain in her hands or in her shoulders at any time prior to three weeks before her visit. The present pain and swelling began insidiously. It was worse in the mornings. It was of a tingling, burning type and it extended up above the elbows of both extremities. Only mild pain was present in the shoulders. In addition she complained of rapid heart beat and of a lump in her throat. Her past history was negative except that she had always been "nervous" and a "worrier" and had suffered from insomnia for years. Her husband was living and well and her children were married and well. She had two brothers who died in mental hospitals.

Examination revealed increased rubor in both hands, and there was diffuse swelling of the hands and fingers. She could not make a full fist with either hand, the right being worse than the left (fig. 6). There was diffuse palmar fibrosis which was more prominent in the region of the fourth metacarpal. Passive straightening of the fingers was extremely painful. Examination of the shoulders disclosed limitation of full abduction by 20 degrees. Rotation was slightly limited. The sedimentation rate was 17 mm. in one hour (Westergren method), and the basal metabolic rate was normal. No evidence of heart disease was found. The electrocardiographic tracing was normal.

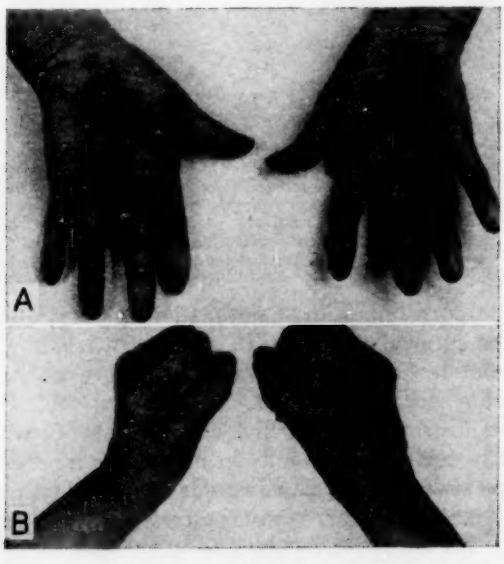

Fig. 6.—Hands of a housewife, aged 71 years, with shoulder-hand form of periarthritis. *A*, palms of hands three weeks after onset of symptoms; note the mottling of skin, Dupuytren's contracture, and swelling. *B*, attempt to make a fist; glossy, mottled skin and swelling and stiffness are apparent.

A diagnosis of shoulder-hand syndrome with early bilateral Dupuytren's contracture was made. The patient was instructed in physical therapeutic measures, which consisted of massage of the palms and fingers and exercises for the shoulders. She was given 0.5 grain (0.032 gm.) of phenobarbital three times daily and told to take 10 grains (0.65 gm.) of acetylsalicylic acid every four hours for relief of pain. She returned home for six weeks and continued this form of treatment, but when she returned she was not appreciably better. She had roentgen therapy of the hands, but this produced no beneficial effects.

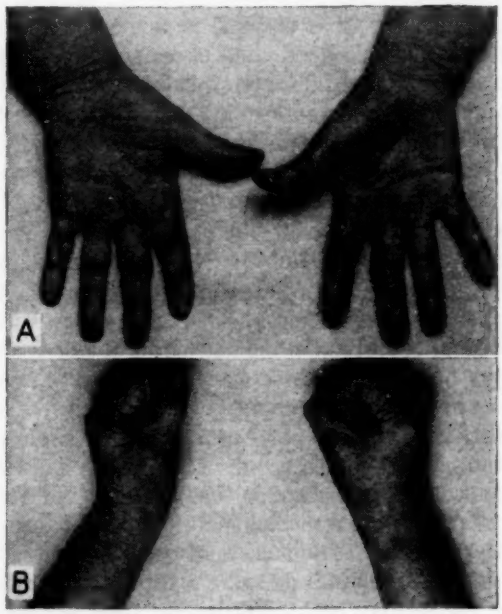

Fig. 7.—Same patient as in figure 6. *A*, palms of hands seven weeks after treatment with cortisone; note the more nearly normal appearance of the skin, absence of swelling, and less Dupuytren's contracture. *B*, attempt to make a fist; full range of motion, and the absence of swelling are evident.

One month later she returned again. The condition of the hands was worse; they were still swollen, cyanotic, and red. There was pain on flexion and extension of the fingers. The palmar fibrosis was increasing. At this time treatment was started with 100 mg. of cortisone given orally in four divided doses each day. This was a larger dose than the dose usually given, because of the hand involvement and the apparent progression of her symptoms. She was advised to continue the massage and exercises without any change. This dosage of cortisone was continued for five weeks, after which it was reduced to 50 mg. a day for one week, then 25 mg. a day for the following week, and finally discontinued. No signs of intolerance to cortisone were noted. Improvement in the condition of the hands was observed within four days after the beginning of treatment with cortisone, and this improvement continued. The pain and stiffness left the shoulders. The fibrotic palmar nodules began to soften gradually; she was able to increase the flexion and extension of her fingers, and the left palm was no longer tender. Seven weeks after the onset of treatment with cortisone she was able to make a full fist and fully extend her fingers. She stated that her hands were no longer painful (fig. 7).

Nine months later she was reexamined. There were no pain, no swelling, and no limitation of motion in the hands or the shoulders. Mild fibrosis in the palms was observed, without contraction of the fingers. There was no tenderness.

Surgical Measures.—If the trigger points that occur frequently about the shoulder and neck and sometimes in the arm and hand are definite, they may be injected with procaine or piperocaine (metycaine®) hydrochloride. The pain pattern may be broken by this means and recovery facilitated. If the dystrophy has progressed to the spinal level, block of the stellate ganglion will occasionally be of value. If it is successful, alcohol injection

or sympathectomy may be resorted to. Injection directly into the painful portion of the musculotendinous cuff is also occasionally helpful.

The time-honored procedure of manipulation of the frozen shoulder still has value. The pendulum of opinion has swung away from manipulation under anesthesia, however, because of the frequent exacerbation of pain following its use and the possibility of damage to the shoulder structures. The shoulder cuff and the capsule may be torn, and the humerus may be fractured by this procedure. Manipulation may be employed in combination with other forms of treatment.

Removal of calcific deposits is not indicated during periarthritis. It is best deferred until the periarthritis has resolved, as operative removal may aggravate the pain and increase the factor of disuse. Removal of the calcific deposits is not necessary unless pain remains.

Excision of the acromion process is in the same category as removal of calcific deposits and should be done, if considered necessary, after stiffness of the shoulder subsides. It is applicable in cases of degeneration of the shoulder cuff associated with persistent pain on abduction.

Repair of a torn supraspinatus tendon or involved tendon of the long head of biceps should also be used only after the shoulder has become limbered up and the patient's symptoms of disuse have disappeared. They should then be undertaken if pain in the shoulder persists because of their presence.

Psychotherapy.—Psychotherapy can be an everyday treatment in periarthritis. The type of patient in whom periarthritis develops is frequently heavily reliant on the physician. Sympathy and encouragement to do a little more each day, plus assurance that the patient will ultimately recover, form the basis for psychotherapy in these cases. Occasionally, the emotional problem is a profound one, and a psychiatrist must be consulted. Often emotional conflicts can be uncovered by the psychiatrist and resolved.

SUMMARY AND CONCLUSIONS

Periarthritis of the shoulder is a manifestation of pain and stiffness in the shoulder of varying degrees and proportions. Three forms can be recognized: pain with minimal stiffness, "frozen shoulder," and the shoulder-hand syndrome. There are many causes for painful shoulder, but the occurrence of periarthritis is dependent on disuse and the presence of a periarthritic personality. The sensitivity of the sympathetic nerves to disuse may be peculiar to the periarthritic personality. Reflex sympathetic dystrophy is the probable cause of the stiffness and other changes in the shoulder and hand in periarthritis.

The treatment of periarthritis is directed toward reversal of the disuse syndrome. Any stimulus that can be given the patient to induce use of the shoulder will result in recovery. Of these stimuli, cortisone has been found most helpful.

TECHNIQUE AND VALUE OF MYELOGRAPHY

Frank L. Shipp, M.D., Boston

Since 1938 myelography has been performed on more than 3,000 patients by the orthopedic and neurosurgical services of the Lahey Clinic. The contrast media employed have included gases, such as air and oxygen, and radiopaque oils, such as iodized oil (lipiodol®) and ethyl iodophenylundecylate (pantopaque®). This last, which has been used exclusively since 1946 in over 1,800 instances, has produced no significant ill-effects attributable to the agent itself. The time seems appropriate to review this experience, to point out sources of error in the past, and to explain the steps that have been taken to improve our results in the future. I have included the details of the technique employed, most of which probably are familiar already, only because I believe that some of the minor points have not been mentioned previously, although they contribute materially to successful myelography.

INDICATIONS

Myelography is employed routinely: (1) to confirm or to exclude the presence of an intraspinal lesion when clinical methods, including adequate roentgenograms, have failed to establish an unequivocal diagnosis; (2) to differentiate intervertebral disk protrusions from spinal cord tumors, to disclose multiple lesions, if present, and to localize any lesions thus found [1]; (3) to investigate persistent or recurrent symptoms referred to the spine, in patients who have undergone previous surgery; (4) to exclude tumors or similar lesions in patients with a presumptive diagnosis of degenerative disease of the spinal cord; and (5) to exclude intraspinal disease in patients about to undergo a spine fusion, with or without laminectomy, particularly in cases of spondylolysis or spondylolisthesis.

Normal myelograms are of definite value, for they often limit the extent of operation; in other cases, they reaffirm the decision to carry on with conservative treatment.[2] From our own experience, 4.3% of patients requiring exploration of the lumbar spine for low back pain have been found to suffer from tumors of the cauda equina.[3] Of the disk protrusions, approximately 14%

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1. (*a*) Dandy, W. E.: Diagnosis and Localization of Spinal Cord Tumors, Ann. Surg. **81**: 223-254 (Jan.) 1925. (*b*) Fullenlove, T. M.: Factors in Globule Formation with Pantopaque Myelography, Am. J. Roentgenol. **63**: 378-379 (March) 1950. (*c*) Kubik, C. S., and Hampton, A. O.: Removal of Iodized Oil by Lumbar Puncture, New England J. Med. **224**: 455-457 (March 13) 1941. (*d*) Mixter, W. J., and Barr, J. S.: Rupture of the Intervertebral Disc with Involvement of the Spinal Canal, ibid. **211**: 210-215 (Aug. 2) 1934.

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have involved more than one segmental level. Disk protrusions, incidentally, have seldom been found in combination with spondylolisthesis.

SELECTION OF PATIENTS

Although the procedure should be relatively painless and atraumatic, it is not recommended in the case of an obvious malingerer, except as a forensic measure to exclude intraspinal disease or injury. It should be withheld in cases of patients who are emotionally unstable or who are otherwise psychologically ill adapted to any surgical procedure. Myelography has been employed in both very young and very old patients, but usually only when there were urgent symptoms.

PREPARATION

Adequate preoperative roentgenograms of those segments of the spine under consideration are essential to rule out anomaly, disease, or injury involving the vertebral column. We all realize that lesions of the lower thoracic region, such as metastatic disease or tuberculosis, may readily simulate lumbar disk protrusions.

Preoperative cleansing of the lower bowel with laxatives, but not with enemas, improves visualization and, as well, reduces the incidence of postoperative headache. Sufficient medication is used to obtain moderate analgesia, while avoiding marked depression, which not only would limit the patient's ability to cooperate but, at the same time, might so lower the cerebrospinal fluid pressure as to make lumbar puncture difficult. Light anesthesia has been found necessary only rarely and then only for patients with otherwise intractable pain.

The prone position is employed routinely because we have found that the needle, once inserted, may slip out of the dural canal or may injure nerve roots, if the puncture is done with the patient sitting up or lying on his side, and both of these positions necessitate a further change to the prone position. A folded bath blanket placed under the lower abdomen serves to minimize the lumbar lordosis, to separate the spinous processes in the lumbar region, and generally to make the patient more comfortable. Shoulder rests and a foot rest are fitted snugly to prevent the patient from sliding to either end when the table is tilted.

Myelography demands close understanding and cooperation between the surgeon and the radiologist. Both should be fully protected against radiation by means of lead-lined aprons and similar gauntlets, the surgeon having discarded his sterile gloves after the initial injection. The use of monitor films is recommended as an index of the radiation to which they have been exposed. The circulating nurse or technician should take similar precautions. Under ordinary circumstances, we have found that the hazard of exposure, insofar as the patient is concerned, has been of less importance.

TECHNIQUE

The space between the third and fourth lumbar spinous processes is that usually chosen, since that level represents the most dependent point in the lumbar spinal canal, when the patient is in the prone position. This is desirable because the ethyl iodophenylundecylate can subsequently be pooled most readily there for withdrawal. By using this particular interspace, one avoids the commonest sites of disk protrusion, 93% of which occur at the fourth and fifth lumbar levels. The use of interspaces proximal to the third is avoided also, both because pooling of the medium becomes more difficult and also because the needle is more likely to injure a nerve root or even an anomalous prolongation of the spinal cord itself.

The lumbar region is prepared as for a surgical procedure and draped with towels. After the level is checked fluoroscopically, the skin is infiltrated with procaine hydrochloride, 0.5%. Using fluoroscopic control as necessary, an 18 gage spinal needle with a short bevel is then inserted in the midline. This gives the patient little discomfort, and there is little risk of trauma to the nerve elements, if the direction is well maintained. When the needle tip enters the subarachnoid space, a free flow of cerebrospinal fluid occurs. If a bloody tap results, the needle is withdrawn and reinserted at a different level. If a second insertion fails to yield a free flow of fluid, the examination is postponed. To persist under unfavorable circumstances and furthermore to inject ethyl iodophenylundecylate will certainly prejudice the myelogram obtained and may render removal of the oil difficult or even impossible. Multiple punctures are conducive to subsequent leakage of the fluid or of the oil itself and may also produce epidural or subdural hemorrhage. If a free flow is obtained, the needle is gently pressed more deeply until the point abuts against the anterior wall of the canal, and then it is withdrawn 3 to 5 mm.

Specimens are obtained and dynamics tested at this juncture. The former include an initial specimen of 1.5 cc. for total protein estimation and a further specimen of 5 cc. for other studies. The total protein value, in a case of complete or nearly complete subarachnoid block, will be found to be higher in the few drops of fluid that escape first than in subsequent specimens. Pressure readings are obtained between the first and second specimens. In some instances, in which the initial pressure is extremely low, an adequate puncture with the patient in the prone position may fail to yield a satisfactory flow of spinal fluid. The fact that the tip of the needle is in the desired location may be confirmed either by jugular compression or by lowering the foot of the table. The exact location may be checked by fluoroscopic examination in the oblique planes.

The rate of rise of the fluid in the manometer tube, on strain or on jugular compression, should be noted. The initial pressure should be below 150 mm. of water, while the pressure increase should be at least 100 mm. The rise and fall should be rapid, and the pressure should return to its original figure, if no significant block is present. The fluid should be clear, containing only two or three cells per cubic millimeter. Total protein values of from 35 to 100 mg. are in keeping with disk protrusion, while higher figures suggest the possibility of cord tumor.

A small quantity of ethyl iodophenylundecylate, 0.5 cc., is injected for test purposes before adding the remainder. If the few drops injected appear to run freely in the desired plane, a total quantity of 6 cc. is employed. The use of amounts less than 5 cc. has proved that small, multiple lesions that are not obstructive will often be

overlooked. Except to demonstrate the exact level of a known obstruction, the use of such small amounts is contraindicated.[4] Fluoroscopy is then performed, the needle being left in situ, provided that the presence of cord tumor can be excluded. The bath blanket is removed, restoring the normal lumbar curve. The pseudodefects that may be caused by the tip of the needle must be kept in mind and must be recognized, if they occur. They usually result from faulty introduction, that is, introduction other than in the midline. Localized bleeding produces a characteristic "halo" defect, while displacement of a nerve root or roots may simulate edema or even disk protrusion. Care must be taken to avoid striking the butt of the needle with the fluoroscopic screen.

When one stops to consider that the oil injected, even in larger quantities, apparently fills only the anterior portion of the spinal canal, the necessity for fluoroscopy in more than one plane becomes apparent at once. Aside from the usual posterolateral view, right and left oblique and right and left lateral views may be necessary. In a case of suspected cord tumor, negative findings in these various planes demand the removal of the needle and further fluoroscopy with the patient supine. If a tumor is suspected or found, the possibility of multiple lesions must be considered, and, for that reason, the entire length of the spinal subarachnoid space is inspected.[5] In cases of disk protrusion, fluoroscopy is carried at least as far cephalad as the eighth dorsal segment. Any limited examination of the lower lumbar canal and cul-de-sac only is inadequate and seldom, if ever, justifiable.

Interpretation of the fluoroscopic findings has been thoroughly discussed by Camp,[4] Childe,[6] and other authorities. It should be stressed, however, that excessive reliance on fluoroscopy not only increases the radiation hazard but also may lead to a high incidence of false negative results. Investigation has proved that fluoroscopy alone is accurate in only 55 to 60% of cases. For that reason, it is complemented with numerous spot films in appropriate planes. We take routine anteroposterior, as well as both oblique, films of the third, fourth, and fifth lumbar interspaces, in examining the lumbar spine. Examinations of the cervical spine include anteroposterior and both oblique films of the cervical spine and the cervicodorsal junction. In the dorsal spine, films are taken as dictated by the circumstances.

If the upper thoracic and cervical segments are to be examined, special precautions must be taken to prevent the oil from gaining entry into the ventricular system. The patient's neck is hyperextended in neutral rotation by inserting a bulky pad between the chin and the surface of the table. Before removal of the oil, the patient is tilted at least once into the upright position to distend the cul-de-sac. Only by this maneuver will some protrusions of the lumbosacral disk be disclosed, and, even then, they may be visible only in the oblique or lateral positions. Errors may still arise by reason of anomalies of the cul-de-sac, which latter may terminate occasionally just cephalad to the lumbosacral interspace or else may be quite narrow throughout its terminal portion. In either event, even a rather large lumbosacral disk protrusion may not be evident on myelography.

For removal of the oil, the radiologist tilts the table until the ethyl iodophenylundecylate has been pooled about the point of the needle in the third lumbar interspace. Removal is then accomplished by gentle, slow aspiration. If there is a good flow, but only spinal fluid is obtained, the needle point is advanced into the pool of ethyl iodophenylundecylate that is lying in the most dependent portion of the canal. If no flow occurs, or if the patient experiences pain, the needle is gently rotated through 90 degrees. Either lack of flow or pain may result from drifting or pulling of a nerve root against the mouth of the needle. If a free flow then cannot be obtained, the position of the needle point is checked by fluoroscopy. If an adequate flow still is not established with adjustment and clearing of the needle and with further pooling of the oil, the needle is withdrawn and a second needle is inserted at the same or at another level.

When aspiration proves difficult, as it will occasionally, the oil is recovered either by allowing it to well up through the needle on jugular compression or by employing Valsalva's maneuver. If the oil column remaining starts to break up into globules, the radiologist usually can collect them once again in the cul-de-sac and can bring the oil to the tip of the needle by careful tilting of the table.[1d]

We believe that, while the use of a large syringe and a single aspiration for recovery of the ethyl iodophenylundecylate may be more dramatic, it is also much more likely to cause the patient unnecessary discomfort and even permanent injury. A smaller syringe, preferably of 2 cc. volume, with gentle, intermittent aspiration, will usually prove equally effective and will avoid damage to the nerve roots. A single anteroposterior film of the lumbosacral area is taken when the aspiration is complete. As a rule, all or almost all of the ethyl iodophenylundecylate can be removed without undue difficulty. In some instances, when this has not been possible, the patient has been returned to the ward, care being taken to keep the head elevated, and, after two or three days, further lumbar puncture has usually made satisfactory removal possible.

Finally, in regard to routine after-care, the patient is returned to bed, where he remains flat for 24 hours. The incidence of headache has diminished steadily as our technique has improved. When headache does occur, it is less severe if all fluids are restricted for 24 to 48 hours. In the case of persistent, severer headache, as from the leakage of spinal fluid consequent to multiple punctures, epidural injection of 25 to 50 cc. of sterile isotonic sodium chloride solution through a fine spinal needle will serve to restore the fluid equilibrium and to relieve symptoms, at least temporarily.[7] Such an injection may be repeated as often as necessary until lasting relief is obtained.

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7. Rice, G. G., and Dabbs, C. H.: The Use of Peridural and Subarachnoid Injections of Saline Solution in the Treatment of Severe Postspinal Headache, Anesthesiology **11**: 17-23 (Jan.) 1950.

PRECAUTIONS IN THE USE OF ETHYL IODOPHENYLUNDECYLATE

Ethyl iodophenylundecylate has desirable roentgenologic characteristics. It flows easily, is heavier than cerebrospinal fluid, and is not miscible with the latter. The oil does not disperse readily, and hence it is usually removed without difficulty. Apparently it produces little or no meningeal reaction. It is absorbed slowly by the body.[8] While ethyl iodophenylundecylate as a rule does not break up into globules, we have found this latter tendency to be greater when small quantities of the oil are used. Other measures that discourage globule formation include warming the oil to body temperature before injection, carrying out the actual injection very slowly over a period of one to two minutes, and tilting the fluoroscopy table as seldom as necessary, and then only very gently and very smoothly. It has been suggested that the necessary spot films be exposed quickly before emulsification can occur.[1b]

We are convinced that every effort should be made to recover the ethyl iodophenylundecylate at the time of, or soon after, myelography. While it is acknowledged that this particular oil is relatively nonirritating and that it is absorbable, the rate of such absorption is known to be highly irregular. Even when a large quantity of oil is left in the subarachnoid space, as much as 85% of this may disappear in 8 to 10 months; on the other hand, this is not always the case. Patients have been seen in the clinic with ethyl iodophenylundecylate still present in the subarachnoid space after myelography performed elsewhere. In some of these patients, the bulk of the oil that had been allowed to remain in the spinal canal was found to be fixed firmly by adhesions in as short a time as 27 days after myelography. We believe that such adhesions probably resulted from actual infection introduced at the time of the original puncture, rather than from the agent itself. Nevertheless, they illustrate the potential danger of allowing a known foreign agent to remain in the subarachnoid space.

CONCLUSIONS

With adequate facilities and when properly performed, myelography is a relatively painless and atraumatic procedure of short duration. So great is the value of the information obtained from this method of diagnosis that we believe it should be employed in every case in which operation on the spine is contemplated and in which other studies have failed to produce an unequivocal diagnosis.

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NEUROLOGICAL COMPLICATIONS FOLLOWING ANTIRABIES VACCINATION

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It has long been known that antirabies vaccines sometimes produce neuroparalytic accidents. From 1928 to 1951, 44 cases of encephalomyelitis or neuritis following injection of phenolized (Semple) vaccine were reported to the New York City Department of Health. These patients were residents of New York. They were seen by us while in the acute stage and were followed subsequently. In addition, we studied two nonresident patients. It is the purpose of this paper to analyze the clinical and epidemiological aspects of this experience, to discuss certain features of prophylaxis, especially those relating to the value and hazards of vaccination, and to discuss briefly the newer measures designed to eliminate postvaccinal reactions.

ETIOLOGY AND PATHOLOGY

The cause of the encephalomyelitis that develops after antirabies vaccination is not clear. Most workers believe it is a sensitization phenomenon. That encephalomyelitis can be produced in experimental animals by injection of brain tissue was shown by Rivers, Sprunt, and Berry,[1] in 1933, and has been confirmed by others. It has also been produced in dogs with injections [2] of phenol inactivated rabies virus in horse brain. Lewis [3] showed the presence of antibrain antibodies in experimental animals injected with brain substance, and Kirk and Ecker [4] showed that antibodies to brain tissue are also produced in humans receiving antirabies vaccine. Koprowski and Le Bell [5] obtained serial blood specimens from 50 persons receiving Semple vaccine in one of our antirabic clinics. They demonstrated the development of complement-fixing antibodies to brain tissue in the serums of 50% of 34 persons receiving a 14 day course and in none of 16 persons receiving a 7 day course of treatment. Two of three persons in whom encephalomyelitis developed had high titers against brain tissue, and one had a low titer. Kirk and Ecker also found a high titer of antibrain antibody in a child in whom encephalomyelitis developed following inoculation.

Since no deaths occurred in our series, there was no opportunity to study the pathological changes in the brain and spinal cord. In reports by others it has been noted that these changes usually are of the nature of a disseminated encephalomyelitis. The lesions show perivascular lymphocytic infiltration, microglial proliferation, and partial demyelination, with relative sparing of the

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Because of space limitations, some of the bibliographic references have been omitted from THE JOURNAL and will appear in the authors' reprints.

1. Rivers, T. M.; Sprunt, D. H., and Berry, G. P.: Observations on Attempts to Produce Acute Disseminated Encephalomyelitis in Monkeys, J. Exper. Med. **58**: 39, 1933.

nerve cells. Occasionally, the reaction is confined to the nerve roots and peripheral nerves, and the morphological picture is that of acute polyradiculoneuritis.

CLINICAL MANIFESTATIONS

The time relation between onset of the neurological complication and the first injection of antirabies vaccine in shown in table 1. It will be noted that in most instances the paralytic accident occurred between the 8th and 21st day after the initial injection. The shortest interval between the injection and onset of neurological involvement was 6 days and the longest 45 days. Usually, the onset was sudden, with chills, varying grades of fever, headache, vomiting, and changes in the mental state. In some cases, the mode of onset was more gradual, with slight elevation of the temperature, sensory disturbances, weakness of the extremities, and urinary retention. Convulsions were observed at the onset in only one patient, and coma was not encountered. The clinical picture varied, depending on the type of neurological involvement. Three clinical types were observed:

Encephalitic Type.—The encephalitic type was characterized in most instances by fever, headache, pains in the body and extremities, changes in the mental state, and the presence of nuchal rigidity associated with positive Brudzinski and Kernig signs, and, frequently, with changes in deep and superficial reflexes. The Babinski sign was often positive. Hemiparesis was noted in five instances and hemisensory disturbances in two. General hyperesthesia, paresthesias, dizziness, and ataxia were observed occasionally. Three patients had tremors or twitchings, two had blurred vision, and one had diplopia. There was one instance of strabismus and one of peripheral facial palsy. Dysarthria was noted in two patients, one of whom also had temporary dysphagia. Other patients showed a more diffuse involvement of the central nervous system; in addition to many of the symptoms noted above, they had paralysis of various muscle groups, the lower extremities being affected most commonly, and, frequently, disturbance of bladder function, also. In this group there were 37 patients.

Dorsolumbar Myelitic Type.—In the dorsolumbar myelitic type, the onset was more gradual. The patients complained of back pain followed in a few hours or days by paralysis of the legs, partial or complete anesthesia, and loss of sphincter control. In two patients onset began with paresthesias. The paralysis was spastic in three of the cases and was associated with exaggerated deep reflexes and a positive Babinski sign. In two instances, there was flaccid paralysis with abolition of the reflexes. There were five patients in this group.

Neuritic Type.—In the neuritic type, the picture was mainly one of involvement of the peripheral nerves. In four of the patients the neurological complication assumed this form. Two of the patients showed sensory disturbances in all extremities but no muscle weakness, one had weakness associated with sensory symptoms and absent reflexes in all four extremities, and one had a foot drop. None of these patients had fever.

In several patients there was some overlapping of symptoms. It may also be noted that the more serious ascending paralysis of the Landry type, which is mentioned in the literature on postvaccinal complications, was not encountered in our series of cases. This is a rare form with a high fatality rate.

Spinal taps were done at least once in 33 patients. The results of the examinations, which were often incomplete, are shown in table 2. The fluid was clear in most instances and frequently was under somewhat increased pressure. A moderate increase in the number of white cells was the commonest abnormal finding. The highest cell count was 1,260. The differential count usually showed a definite predominance of lymphocytes, but in two cases the polymorphonuclear cells predominated. There was a moderate increase in the protein content in the majority of cases. Quantitative protein determinations, available in 23 cases, are shown in the table. The sugar level was normal or elevated in all patients tested. Cultures of the fluid specimens were uniformly sterile.

TABLE 1.—*Time Relation Between First Injection of Antirabies Vaccine and Onset of Encephalomyelitis in 44 Patients*

No. of Days	No. of Patients
6	1
7	1
8 to 14	20
15 to 21	19
More than 21	3

TABLE 2.—*Results of Spinal Fluid Studies in Patients with Encephalomyelitis Following Antirabies Vaccination*

No. of White Cells per Cu. Mm.	No. of Patients	Protein, Mg. per 100 Ml. of Spinal Fluid	No. of Patients	Sugar, Mg. per 100 Ml. of Spinal Fluid	No. of Patients
Less than 10	5	Under 35	2	Under 40	0
10-50	13	35-50	9	40-80	13
51-100	8	51-100	9	81-100	8
101-200	4	101-150	3	Above 100	2
458-1,200	2				
Totals	32		23		23

CLINICAL COURSE AND OUTCOME

The clinical course was usually short, with recovery occurring in one or two weeks. In some cases, however, progress was slow and recovery gradual. Relapses were occasionally noted. There was not a single death in the entire group of 46 patients; however, it should be noted that in other reports an appreciable mortality rate has been recorded. In Greenwood's [6] series of 77 cases the fatality rate was 25%. Sellers [7] reported 4 deaths in the 7 cases of his series, and Pait and Pearson [8] reported one death in their series of 9 cases.

In a follow-up study, information was obtained on all but one patient, who could not be located; his status after the original observation is, therefore, not known. Of the remaining 45 patients, 26 were seen from 1 to 10 years after onset of the illness, and 19 were seen less than one

3. Lewis, J. H.: Immunologic Specificity of Brain Tissue, J. Immunol. **24**: 193, 1933.

4. Kirk, R. C., and Ecker, E. E.: Time of Appearance of Antibodies to Brain in Human Receiving Anti-Rabies Vaccine, Proc. Soc. Exper. Biol. & Med. **70**: 734, 1949.

5. Koprowski, H., and Le Bell, I.: The Presence of Complement-Fixing Antibodies Against Brain Tissue in Sera of Persons Who Have Received Antirabies Vaccine Treatment, Am. J. Hyg. **51**: 292, 1950.

6. Greenwood, M.: Tenth Report on Data of Anti-rabies Treatments Supplied by Pasteur Institutes, Bull. World Health Organ. **12**: 301, 1945-1946.

year after onset but after discharge from medical observation for the acute condition. Of these 45 patients, 29 (64%) had made a complete recovery, and 16 (36%) had some residual condition. In none were the neurological complications severe enough to prevent the affected person from resuming his usual occupation. Nine complained of slight weakness in one or more limbs, one had residual facial paralysis, two had nystagmus, three complained of difficulty in bladder control, three had slight ataxia, and three had sensory disturbances.

TABLE 3.—*Age Distribution of Forty-Six Patients with Encephalomyelitis Following Antirabies Vaccination*

Age, Yr.	No. of Patients
3 to 14	23
15 to 20	5
21 to 30	4
31 to 40	8
41 to 50	5
Over 50	1
Total	46

No specific therapy was employed. The use of antibiotics in the more recent cases did not appear to alter the course of the illness. Of interest in this connection are the studies of Kabat and co-workers [9] and of Moyer and co-workers.[10] These investigators have shown that demyelinating encephalomyelitis can be suppressed in experimental animals by pretreatment with either corticotropin or cortisone. More recently, Garrison [11] reported a case of encephalomyelitis complicating antirabies vaccination in which a dramatic result appeared to follow cortisone therapy. These observations raise the question whether this hormone therapy may be expected to suppress postvaccinal neurological reactions.

EPIDEMIOLOGY

It has been stated that postvaccinal neurological complications are rare among children. This is not borne out in the present series. As will be seen in table 3, 23 (50%) of the patients were children between the ages of 3 and 14. The predominance of men has been noted by many observers. Thirty-six of our 46 patients were men.

Incidence.—The records of injections with antirabies vaccine in the clinics of the New York City Department of Health are complete for every year since 1935. For the 17 year period 1935 to 1951, 42,525 persons were treated in the clinics, and they received a total of 358,027 injections of Semple vaccine (suspension of phenol-killed rabbit brain virus). Twenty-one of the 42 persons in whom encephalomyelitis developed during this period are known to have received their injections in the clinics, and 9 received them from private physicians. Data on the source of injections could not be obtained for the remaining 12. If only the 21 persons with complications known to have been treated in the clinics are considered, a ratio of 1 case to 2,025 persons treated is obtained. If half the persons whose source of treatment is unknown are added, making a total of 27 patients treated in the clinics, the incidence is one case in every 1,575 persons treated. The rate is much higher than that reported from the Pasteur Institutes by Greenwood [6] for the period 1945 to 1946, which was one accident for 9,073 treated persons. It is also higher than the incidence reported by Sellers [7] in Georgia, which was one case in 7,200 persons treated. On the other hand, Pait and Pearson [8] reported one case for every 600 persons who received vaccinations in Los Angeles.

Relation of Paralytic Accident to Number of Injections.—The number of injections of antirabies vaccine received by the 44 patients in our series who subsequently had neurological complications is shown in table 4. Fifty per cent of the patients had received the full series of 14 injections, 73% had received 8 to 14 injections, and 27% had received 7 or fewer injections.

Since 1945, our figures have been analyzed to determine the incidence of encephalomyelitis, according to the specified number of injections received, in all persons vaccinated in New York. The patients were divided into two groups: those who completed the series (14 injections) and those advised to discontinue treatment (7 or fewer injections). The latter group comprised those who had been bitten on the face. When they began treatment, the dog that had bitten them was impounded; if the dog was found to be normal one week after the date of the bite, they were advised to discontinue treatment. There may have been others who received no more than seven injections; they are included in the group who refused further treatment and those who were referred elsewhere. The exact number of such patients is not known, and they are, therefore, not included in the calculations. There were 6,365 persons who received 14 or more injections, and 9 cases of encephalomyelitis occurred among them, an incidence of one case for every 454 persons receiving the full series of injections. There were 8,758 persons who received 7 or fewer injections, and 4 cases occurred among them, an incidence of one case for every 2,190 persons. It is obvious that the risk of an accident is greater for those receiving a full course of treatment.

TABLE 4.—*Number of Injections Received by Patients in Whom Encephalomyelitis Developed*

No. of Injections	Patients	
	No.	%
14	22	50
13	4	9
11	1	2
10	1	2
9	2	5
8	2	5
7	8	18
Less than 7	4	9
Total	44	100

Risk of Rabies Compared to Risk of Postvaccinal Encephalomyelitis.—From 1935 to 1948, 699 rabid animals were picked up in the city; 7 were cats and the rest dogs. They bit 707 persons, all but 8 of whom took antirabies treatment. There were six cases of human rabies during this period, all of which were fatal. Only two of these patients had received antirabies vaccine.

9. Kabat, E. A.; Wolf, A., and Bezer, A. E.: Effect of Cortisone on Experimental Acute Disseminated Encephalomyelitis, Federation Proc. **10**: 412, 1951.

10. Moyer, A. W., and others: Action of Adrenocorticotropic Hormone (ACTH) in Experimental Allergic Encephalomyelitis of Guinea Pig, Proc. Soc. Exper. Biol. & Med. **75**: 387, 1950.

11. Garrison, S. C.: Encephalomyelitis Complicating Antirabies Vaccination Treated with Cortisone, Am. J. Med. **12**: 135, 1952.

The mortality for cases treated with Semple vaccine was therefore 0.3%. According to Greenwood,[6] there were 2,764 deaths among 698,605 persons treated with killed vaccine over a number of years in Pasteur Institutes, a mortality of 0.4%, almost the same as that in this series. It is estimated that rabies develops in 5 to 15% of the persons bitten by rabid animals.[12] In our series of 707 persons bitten, there would have developed from 35 to 106 cases of human rabies, all of which would have been fatal. Treatment, therefore, saved between 33 and 104 human lives. Against this, should be weighed the risk of encephalomyelitis as a result of treatment. In this same period 41 cases of encephalomyelitis followed antirabies vaccination. All of these patients survived and the majority made a complete recovery. Treatment apparently was worth the risk.

Criteria For Use of Vaccine.—Since the use of antirabies vaccine exposes the persons treated to the risk of encephalomyelitis, there is good reason for establishing fairly rigid criteria for its administration. There is little evidence that persons in contact with or scratched by a rabid animal will have rabies, unless they are actually bitten. Sellers [13] reported 54 cases of rabies in persons giving a record of exposure to a rabid dog. All but one had been definitely bitten by the animal. Denison and Dowling [14] found that all of 48 cases of human rabies in Alabama had followed an actual bite. There is no good reason for advising treatment with antirabies vaccine for persons who have touched or played with a rabid animal or have been scratched by it.

Even when there is a definite bite by a rabid animal, the probability of the development of rabies varies according to a number of factors, such as the type of animal, the number of bites, the location of the bite, the type of wound, and the amount of covering on the part of the body bitten. Palik and Moss [15] found that there were seven deaths after 3,242 bites on the bare skin but none after 857 bites through clothing. In all these cases, the persons were treated with antirabies vaccine after being bitten. Greenwood,[6] in the 10th report of the Pasteur Institutes, found that the mortality in treated patients bitten on the bare skin was 0.28%, while in those bitten through clothing it was 0.01%. The mortality after face bites is said by McKendrick [16] to have been 10 times that after bites on the upper extremities and 28 times that after bites on the lower extremities. Sellers [7] reported that of 32 rabies fatalities among 50,000 persons treated with antirabies vaccine, 60% followed severe face bites, 34% followed bites on hands or arms, and 3% each followed bites on the trunk or lower extremities.

The New York City Department of Health at present advises antirabies vaccination only after a bite by a rabid animal, by a suspiciously rabid animal until its status has been determined, or by a stray dog that cannot be apprehended. Known dogs or cats that bite humans are observed for one to two weeks, and, unless rabies develops in them, no treatment is advised. No treatment is advised after bites by squirrels, rats, or other animals, since no cases of rabies have been found among them in the city. Since 1949, no cases of rabies in man or beast have occurred in the city. If this record continues, the advice to take treatment after a bite by a stray dog or cat may have to be reevaluated.

The use of an antirabies vaccine that does not contain brain tissue would probably eliminate the danger of encephalomyelitis. Such a vaccine has been used in animals. A strain of virus from the brain of a child dead of rabies was grown directly on embryonated eggs by Leach and Johnson.[17] It has been used fairly extensively in the immunization of dogs against rabies and is available commercially.[18] We have used it in the immunization of 24,547 dogs since 1949. No case of rabies or encephalomyelitis has occurred in any of these dogs. The virus is a live one, and its use in humans has not yet been sanctioned by the National Institutes of Health.

Another possible prophylactic measure against rabies is the use of antirabies serum, which was first suggested in 1889 but has been used very little. It is currently prepared by immunizing rabbits or horses with rabies virus and is administered in a dose of 0.5 ml. per kg. of body weight. It must be given within 24 hours after exposure. Koprowski and Cox [19] report favorable results from its trial in 29 humans bitten by rabid animals. Since most of these persons were also treated with Semple vaccine, the favorable outcome in all cases cannot be properly evaluated. Although it is freely admitted that the Pasteur treatment or its modifications are not the complete answer to the prevention of rabies in man, some form of vaccine still appears to be the best tool available. It is, therefore, important to develop a vaccine sufficiently potent to be of value and to eliminate, if possible, admixture of brain tissue to avoid complicating encephalomyelitis.

SUMMARY

Experience in 46 cases of encephalomyelitis following vaccination with rabies virus in New York City from 1928 to 1951 is summarized. There were no deaths. The clinical manifestations are described according to the three general types encountered, encephalitic, dorsolumbar myelitic, and neuritic. The spinal fluid was usually clear, with an increase in cells, predominantly lymphocytes. The protein content was generally elevated, the sugar content was normal, and cultures were sterile. There is no specific treatment. The use of cortisone and corticotropin requires further investigation.

The epidemiological features are discussed. The incidence of encephalomyelitis was one accident to 2,025 persons treated in New York City Department of Health Clinics, but it was about five times higher in those who received 14 injections than in those who received 7 or fewer injections. The risk of rabies from a bite is shown to be greater than that of encephalomyelitis from vaccination. Criteria for use of vaccines are given, and avianized vaccine and antirabies serum are discussed.

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13. Sellers, T. F.: Antirabic Treatment, J. M. A. Georgia **28**: 298, 1939.
14. Denison, G. A., and Dowling, J. D.: Rabies in Birmingham, Alabama; Human Mortality as Affected by Antirabies Treatments, J. A. M. A. **113**: 390, 1939.
15. Palik, E. E., and Moss, E. S.: Rabies: 10-Year Survey of Pasteur Institute of Charity Hospital of Louisiana at New Orleans, New Orleans M. & S. J. **97**: 153, 1944.
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MANAGEMENT OF BREAST FEEDING

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In July, 1946, a study of parent-child relationships was initiated in the department of pediatrics at the Yale University School of Medicine, and at the same time a rooming-in unit [1] was established on the University Service of the Grace-New Haven Community Hospital. The two undertakings were jointly named the Rooming-In Project. Rooming-in is an arrangement whereby the infant's crib is placed by the mother's bedside, and both mother and infant receive nursing care according to their needs. The details of the Yale rooming-in plan have been described elsewhere.[2] Pediatric fellows have been given annual appointments to assist in gathering data for the study and to carry out the clinical responsibilities of infant care both in the rooming-in unit and in the newborn nursery. Observations and supervision of breast feeding both in the hospital and at home were of special interest for the study and important in the care of mother and infant.

The purpose of this paper is to explain the procedures utilized in the establishment of breast feeding and to discuss the management of some of the problems that arise. Much that is described is not new, and a great deal of it seems obvious. Often, however, it is the regard for small items that makes the difference between success and failure for the nursing mother. Because discussion of these various small practical points could not be found in any one publication, it was originally planned to compile a practical guide to the management of breast feeding for the use of resident staff members. This paper is an outgrowth of that plan. Waller's book "Clinical Studies in Lactation," [3] has been found to be of great assistance. Naish's "Breast Feeding" [4] is also recommended for those interested in further reading. The procedures described in this paper were those in practice during the year July, 1948, to July, 1949. There have been some variations since that time, according to the special interests of new staff members. Any discussion about the management of breast feeding brings up many controversial points. It can only be stated that our experience with the method here described led to the belief that it was generally satisfactory and helpful to nursing mothers; it is recognized that similar satisfaction may be attributed to other procedures.

The success or failure of breast feeding is largely determined by the interrelationships of mother, father, baby, and environment. Successful management involves an understanding of these variants and their relationships. In relation to the mother, consideration must be given to her attitude toward breast feeding, her emotional makeup, home and family conditions, her breast anatomy, and her state of health. The father's interest in the mother's wish to nurse is important. The baby's maturity, weight, vigor, appetite, and feeding characteristics must be considered. Environment includes the type of hospital routine and the generally prevailing lay and professional attitudes toward breast feeding. It cannot be overemphasized that each individual case may be managed differently and that the details of each procedure outlined must vary according to the type of situation and persons concerned. An insecure mother with a sleepy baby in a hospital that discourages nursing will be an entirely different problem in management from an insecure mother with a sleepy baby in a hospital sympathetic to breast feeding.

In general, the aim in the management of breast feeding has been to keep the process as natural and simple as possible. Two recent trends in hospital maternity care are intended to help in this direction: the self-demand or flexible-schedule method of feeding and the rooming-in type of care of mother and newborn. One noteworthy advantage of the flexible-schedule method [5] is that the babies are put to the breast when hungry. Studies by Gentry and Aldrich [6] would suggest that babies feed more vigorously when allowed to waken by themselves; on scheduled feedings the baby may not be awake or hungry when put to the breast and may feed either poorly or not at all. Rooming-in not only gratifies a strong need that many mothers feel for such an arrangement but also provides a practical situation for self-demand feedings.[7] Although putting babies to the breast on a self-demand or unscheduled basis is very difficult in hospitals without a rooming-in arrangement, most of the other procedures outlined in this paper have been found to be applicable on the ward service with the usual newborn nursery arrangement. The management of breast feeding will be discussed chronologically according to the special requirements in the prenatal, hospital, and post-hospital periods.

PRENATAL PERIOD

Prenatal preparation for breast feeding is beneficial in several ways. It is helpful to the mother to have the opportunity to discuss breast feeding and to have her questions answered before the baby is born. It is the policy of this clinic to encourage nursing but not to attempt to persuade the mother against her desires. The primary

From the Yale Rooming-In Project (Dr. Jackson, Director), Department of Pediatrics, Yale University School of Medicine, supported by grants-in-aid from (1) Mead Johnson and Company; (2) the George Davis Bivin Foundation, Inc.; (3) the Field Foundation, Inc.; and (4) the National Institute of Mental Health of the National Institutes of Health, United States Public Health Service.

1. This rooming-in unit was established with the cooperation of the Department of Obstetrics and Gynecology of the Yale University School of Medicine, the Yale School of Nursing, and the Administration of the Grace-New Haven Community Hospital.
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consideration of the staff is to build up a happy mother-baby relationship, and success in breast feeding often does much to facilitate this. On the other hand, this relationship may be adversely affected if the mother does not enjoy nursing. It is important therefore to avoid or to allay guilt feelings on the mother's part if she does not wish to nurse or if she fails in her attempt.

The pediatric fellows meet the mothers individually in prenatal clinic in reference to their choice of hospital accommodation for the infant and their ideas about infant care; they discuss among other questions that of breast feeding. Apart from the clinic instructions given by the obstetric staff regarding adequate diet and rest, active preparation for nursing is deferred until the last six weeks of pregnancy. In this latter period the mother is advised to massage her breasts lightly with ointment (in this clinic, theobroma oil [cocoa butter], hydrous wool fat [lanolin], or cold cream have been used) and the nipple and areolar areas gently with a soft towel every day, as an attempt to prepare the breasts for the baby's suckling. This also serves to focus the mother's interest on breast feeding and affords something tangible for her to do in preparation. The correct method of manual expression of the breasts is demonstrated by a nurse to those mothers who are interested. Facility in manual expression is frequently of considerable help to mothers in the early weeks of nursing. The technique is much easier to learn and to practice prenatally; it is extremely difficult to learn when the breasts are engorged. There is, furthermore, some evidence that the expression of colostrum prenatally diminishes the incidence of engorged breasts in the postpartal period, presumably by keeping the lacteal ducts open and thus preventing stagnation and inspissation of secretions in the ducts, which could cause obstruction.

The breasts are inspected prenatally. This not only gives the mother confidence in the physician's opinion when he tells her she should be able to breast feed, but it may reveal anatomic factors that can be dealt with during pregnancy; for example, a mother with flat or inverted nipples can massage and draw out her nipples several times daily in the attempt to make them more prominent. Some clinics have used a plastic or glass shield with a central perforation for the nipple. This is worn under a snug brassière, and the resulting pressure forces the nipple out and may make it more prominent. Occasionally, nipples are inverted to a degree that makes breast feeding impossible. It is a common idea among lay persons that the presence of small or flat breasts before or during pregnancy precludes breast feeding. The correction of such misconceptions in the prenatal period is helpful to the mothers in making the decision as to whether to breast feed and also in allaying unwarranted anxiety. In our experience, many of the women with small breasts have been most successful in nursing their infants.

HOSPITAL PERIOD

The interest shown in the nursing mother by the physicians and nurses during the hospital period appears to be of basic importance. Often a mother needs simply the assurance that someone is genuinely interested and available to assist her if necessary. The problems of management are, however, somewhat different before and after the milk comes in. The hospital period therefore divides itself into a prelactation and a lactation phase.

Prelactation Phase.—As a result of the obstetric program in "training for childbirth" at the New Haven Hospital,[8] a high percentage of mothers are conscious throughout delivery. For this reason, it is possible for mothers to nurse their babies in the delivery room directly after the third stage of labor. Almost all who have done so have enjoyed the experience.

Each mother is seen by a member of the rooming-in medical or nursing staff shortly after the birth of the infant, and suggestions about breast feeding are given to mothers who wish to nurse. The use of both breasts at each feeding is recommended. In order to avoid trauma to the nipples, the mothers, particularly the primiparas, are advised to nurse no oftener than every two hours and, until the milk comes in, no longer than five minutes on each breast. Except for these limitations the feeding is unscheduled in the rooming-in units. (After the milk has come in, the time limit is withdrawn and nursing time depends on the comfort of the mother and apparent hunger of the infant.) Mothers are forewarned that the

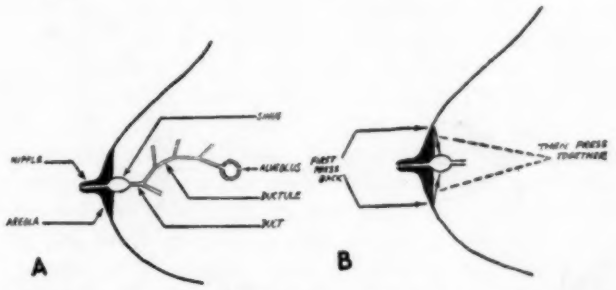

Fig. 1.—*A*, anatomy of breast. *B*, method of areolar expression, showing proper means of compressing sinuses.

milk will not come in until two or three days after delivery. They are reassured that the colostrum is usually sufficient until that time, and, if not, provisions will be made to feed the infant. Clinical observations indicate that this prelactation nursing tends to increase the milk supply. It may also lessen the possibility of engorgement by keeping the ducts open. In addition, nursing during this period accustoms the mother and the baby to each other and to the feeding process, even though it may not yield a great deal of nourishment for the baby.

It is important that a nurse be present at the first breast feeding to give the mother whatever help is necessary and to make sure the mother understands what constitutes good nursing. First of all, she sees that mother and baby are comfortable. Then she places the baby at the mother's breast. As the baby starts to suck, she observes whether the baby's mouth is well up on the mother's breast, and explains to the mother why it is important to have the baby's gums pressing on the areolar area, rather than on the nipple itself. The explanation is based on the following considerations.

Alveoli or glands are the secreting part of the breast. From the alveoli the milk is carried through ever-enlarg-

8. Goodrich, F. W., Jr., and Thoms, H.: A Clinical Study of Natural Childbirth: Preliminary Report from Teaching Ward Service, Am. J. Obst. & Gynec. 56:875 (Nov.) 1949.

ing ductules and ducts to the sinuses. These ductules and ducts have elastic and muscle tissue in their walls. There are 15 to 20 sinuses, each one receiving milk from the corresponding lobe of the breast. Each sinus gives off a small duct that goes out through the nipple, or occasionally through the areola (fig. 1*A*). As can be seen from the diagram, these sinuses lie just behind the areolar tissue. In good nursing, the baby has the nipple well back in his mouth, resting against his palate. His jaws compress the sinuses directly (fig. 2*A*). He squeezes the milk from them and then sucks it up into his mouth. Physiological nursing thus has two components, the emptying of the sinuses by the baby's jaw action and the sucking up of the milk by the vacuum created in his mouth.

Prior to nursing, the mother washes her hands or cleanses them with an antiseptic aqueous solution of benzalkonium (Zephiran®) chloride (1:1000) and cleanses the nipples and breasts with isotonic sodium chloride solution. These solutions and cotton balls for their application are kept at the bedside at all times in small sterile containers. An ointment is applied to the

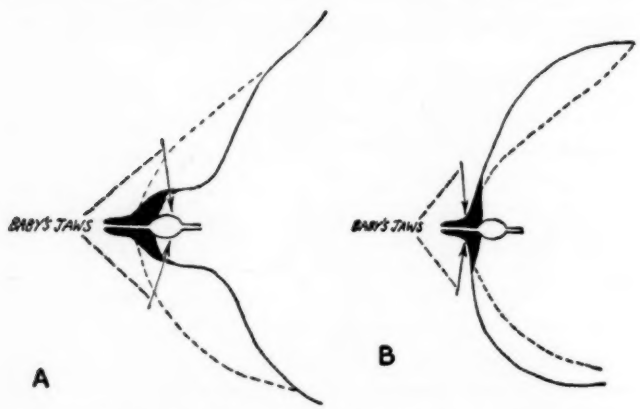

Fig. 2.—Position of baby's jaws in nursing. *A*, correct position. *B*, poor position resulting from areolar engorgement.

nipples after each feeding. (Hydrous wool fat or balsam of Peru ointment were used. Balsam of Peru ointment consists of 2 parts of balsam of Peru, 15 parts of white petrolatum, and 15 parts of hydrous wool fat.) This is dispensed on small squares of wax paper, which are also available at the bedside. It should be wiped off carefully before feeding, because some infants seem to object to its taste and will not nurse avidly if any remains. (Recently the routine use of ointment has been discontinued, with no obvious disadvantage, and less bother for both mother and baby. The nipples are simply wiped off with isotonic sodium chloride solution before nursing.)

Considerable disagreement has been expressed about the use of supplementary or complementary feedings in the prelactation period, or in the early lactation period, if the mother's milk supply is not yet sufficient to satisfy the infant. Boiled water, 5 or 10% glucose solution, and dilute or full strength cow's milk mixtures have all been used. Since there is so much variation from case to case in the reactions and needs of mother and infant, no one preparation can be used to the exclusion of the others; for example, a hungry baby may demand milk, while a drowsy baby may be satisfied with water. In general, however, it is our impression that it is of some advantage if either water or glucose can be used, rather than milk mixtures, in these transient periods. During the first week the infant can more easily obtain milk from the bottle than from the breast, and the use of glucose or water obviates the possibility of his coming to prefer the artificial feeding for this reason. Also, the watery solutions do not satisfy his hunger, as do the milk mixtures; they simply tide the infant over until the mother is ready to nurse again, and thereby maintain the stimulus to her milk supply. In the occasional instance of an exceptionally hungry baby, milk preparations are necessary to avoid continuous crying, which can be very upsetting to the mother and baby. No attempt is made to diminish the usual early weight loss by using cow's milk mixtures, except in rare instances (as with premature infants).

The variation in the nursing characteristics of infants has been skillfully presented by Middlemore in "The Nursing Couple."[9] Along somewhat similar lines, one of us (A. N. L.) has grouped the rooming-in babies under five main descriptive headings: (The first term was suggested by a rooming-in mother.)

1. "Barracudas": When put to the breast, these babies vigorously and promptly grasp the nipple and suck energetically for from 10 to 20 minutes. There is no dallying. Occasionally this type of baby puts too much vigor into his nursing and hurts the nipple. 2. Excited Ineffectives: These babies become so excited and active at the breast that they alternately grasp and lose the breast. They then start screaming. It is often necessary for the nurse or mother to pick up the baby and quiet him first, and then put him back to the breast. After a few days the mother and baby usually become adjusted. 3. Procrastinators: These babies often seem to put off until the fourth or fifth postpartum day what they could just as well have done from the start. They wait till the milk comes in. They show no particular interest or ability in sucking in the first few days. It is important not to prod or force these babies when they seem disinclined. They do well once they start. 4. Gourmets or Mouthers: These babies insist on mouthing the nipple, tasting a little milk and then smacking their lips, before starting to nurse. If the infant is hurried or prodded, he will become furious and start to scream. Otherwise, after a few minutes of mouthing he settles down and nurses very well. 5. Resters: These babies prefer to nurse a few minutes and then rest a few minutes. If left alone, they often nurse well, although the entire procedure will take much longer. They cannot be hurried.

There are many babies who fall between these groups and others who fall into groups not described because they are less common. The above grouping serves merely to emphasize the fact that each baby nurses differently, and the course of the nursing will depend on the combination of the baby's nursing characteristics, the mother's personality, and the quality of help from the attending nurse. A calm mother with a "barracuda" will be quite a different matter from an anxious mother with an excited ineffective. It is accordingly advantageous to have the same nurse for both mother and baby; a nurse who knows both mother and baby can give more effective help.

9. Middlemore, M. P.: The Nursing Couple, London, Hamish Hamilton Medical Books, 1941.

In addition to the above-mentioned considerations there are several seemingly minor points, which, when neglected, are causes of difficulty and concern surprisingly often. Some mothers need extra help in finding the most comfortable position for nursing the baby. The mothers assume various positions: lying down, sitting up in bed, or sitting in a straight or rocking chair with various arrangements of pillows for support. Each mother should be allowed to assume the position she prefers, but the nurse should be alert to signs of discomfort and lack of ease and should give assistance when need for it is indicated. She may help to make the same position more comfortable by adding a pillow to support the mother's arm or back, or she may suggest a change of position that had not occurred to the mother.

Snapping the baby's feet, working his jaw, pushing his head, and pressing his cheeks are discouraged. These various methods of prodding not only fail to accomplish the desired result but increase the infant's resistance to nursing and the mother's feeling of frustration. With babies who are slow in taking hold of the nipple, compression of the periareolar area and expression of a small amount of colostrum for the baby to taste are suggested. The infant's breathing may be difficult if the breast is against his nose while nursing, and it is often necessary to keep the breast pressed away with one finger. Quite frequently mothers are observed attempting to turn the baby's head to the breast by pressing his outer cheek, only to find the infant turning away from the breast. It is necessary to explain to them that the infant turns his head to the side of the cheek that is stimulated, and will root for nourishment in that direction (the rooting reflex). In removing a tenacious infant from the breast, the suction of his jaws and mouth should first be broken by the mother's inserting a finger into the corner of his mouth and gently opening it. Simply pulling the suckling away from the breast can be painful, and on occasions may cause petechiae and small ecchymoses on the nipple.

During the prelactation period, the mothers are encouraged to sleep through the night, letting the nurse give the baby glucose solution if he seems hungry. This insures that the mother is well rested for the lactation period, when it is often important for her to feed the baby around the clock. Mothers occasionally become upset and puzzled by the uterine cramps accompanying breast feeding in the first few days. They are relieved to know of their transient nature and of the helpful effect of the nursing process on the postpartal involution of the uterus.

Lactation Phase.—The lactation phase, during which the breasts fill up for the first time, merits particular attention. The prelactation phase has been mainly one of learning and mutual adjustment for mother and infant. With the beginning of lactation, the mother has the thrill of giving to her baby the milk that she has produced. As the late Dr. Aldrich put it, "She not only feels her importance, but acts it." [10]

In general, the primiparous mother is excited by the new experience of breast feeding and is very anxious to succeed. Successful breast feeding is regarded as a difficult goal to achieve, because there have been so many failures in this country. The mother therefore feels challenged in undertaking a procedure that is assumed to be difficult, and she is prone to discouragement that is out of proportion to the significance and transitory nature of the initial difficulties that may arise. If she and the baby are not doing perfectly well on the fourth day or so, she may feel that she has failed, unless someone has explained that the process is one that may require several weeks to establish.

Emphasis is given to this aspect of the problem, because the physician and nurse can do so much to help. Their attention to details at this time can offer the mother immense help, out of proportion to the time and effort involved. The anticipation and explanation by the physician of any minor problems and the calm resolution of the problems by the nurse can make the difference between happiness and discouragement for the mother in this period. It is recognized by the writers that the sympathetic attitude and practical help of the nurses are very important factors in the success of breast feeding.

Both the way in which the milk comes in and the time of its appearance vary. It may appear somewhat earlier in multiparas, but in any event it usually appears between 48 and 96 hours post partum. Within the space of a few hours, the breasts may change from soft and empty to full and firm. It is important to emphasize to the mothers the variability of the onset of lactation, because many begin to worry if they do not conform to the behavior of other mothers in their proximity. Some mothers can date the onset to the quarter hour; others can simply say that the milk came in overnight. In some women the process is so gradual that it takes several days, or, rarely, even weeks, for the breasts to fill completely. In most cases the milk supply increases markedly during the first few weeks, corresponding to the baby's appetite. It is important to note that in the early days the milk supply seems to be more unstable and sensitive to stimuli such as fatigue, anxiety, and lack of suckling. After the first few weeks the supply becomes much more stable.

In the absence of complications, the management of the lactation phase may be much the same as that described for the prelactation phase. There are, however, some differences that require special considerations. After the milk comes in, the mother is urged to breast feed her infant at each of his hungry periods, day and night, instead of sleeping through the night feeding. This insures that the breasts receive adequate stimulation and lessens the possibility that they become so full that it is difficult for the baby to grasp the nipple (see below) or become tender from being over-full.

Once an adequate milk supply has become established, a satisfactory feeding procedure is as follows: the baby is nursed on one breast for from 5 to 10 minutes and then put to the other breast, where he is allowed to suckle as long as he seems to need it. (Mothers are not encouraged to prolong this time over 40 minutes; it is usually between 20 and 30 minutes.) At the next feeding, the mother begins with the breast that was previously nursed for the longer period, in order to equalize the amount of stimulation. A simple method for remembering which side to begin with is to fasten a safety pin to the brassière strap of the appropriate side after each feeding.

10. Aldrich, C. A.: Advisability of Breast Feeding: Survey of Subcommittee on Maternal and Child Feeding, National Research Council, M. Woman's J. (no. 7) 55: 46 (July) 1948.

In most instances, clinical observation permits satisfactory estimation of the adequacy of the milk supply. Infants have been weighed before and after each feeding only when definite knowledge about the baby's intake was considered essential for the management of nursing. The disadvantage of weighing before and after feedings is that the results may assume undue importance for the mother and contribute to her anxiety if some feedings are small. Waller has pointed out that the proper interpretation of before and after feedings weighings depends on weighing at every feeding and on observation of the nursing procedure itself.[3]

Somewhere between the third and sixth days, most neonates manifest "frequency days"—two or three days during which they desire to feed oftener than they do before or afterward.[11] Many mothers feel that this is an indication of an inadequate milk supply and become worried. Reassurance is given that this is a usual occurrence and is probably not the result of insufficient milk. The mothers are also told that during this same period the babies usually have frequent, somewhat loose bowel movements. These may number as many as 10 to 12 in a 24 hour period.

There are some mothers who state that they want to breast feed but show evidence of indecision or hesitation about the process. They are likely to make mountains out of molehills and create a genuine problem in management. It is important to recognize the underlying reasons for their difficulties and on this basis to offer appropriate advice to help them out of their indecisions.

One way in which the lactation phase differs from the prelactation phase is in the frequency of minor complications (only rarely are there major complications). The success of breast feeding may depend on the proper handling of these minor difficulties by the physician and nurse.

PROBLEMS AND COMPLICATIONS IN THE LACTATION PHASE

Engorgement.—The two obvious elements of engorgement are increased accumulation of milk and increased vascularity. Waller feels that the ducts may be blocked by inspissated secretions, resulting in accumulation of milk in the glands proximal to the ducts.[3] Increased vascularity is evidenced by the presence of dilated veins, heat, and redness. In some instances, the engorgement is confined almost entirely to the areolar area. Such a condition requires specific treatment different from that used for engorgement that involves the entire breast. For this reason, a clinical distinction is made between "areolar" and "peripheral" engorgement.

Areolar Engorgement and Its Treatment: When the areolar area is engorged, it cannot be compressed easily by the fingers placed at the areolar-cutaneous margin. Similarly, when the baby tries to nurse, he cannot compress the sinuses with his jaws, and he may find that the mouthful to be encompassed is much too big. He is forced, therefore, to grasp what he can, the nipple alone, and he exerts on it a considerable amount of pressure (fig. 2*B*). The mother usually becomes aware of the problem when the baby, who has previously nursed easily and well, now fusses and has difficulty getting started, and is beginning to hurt the nipple.

The result of the baby's sucking directly on the nipple may be illustrated by a very simple test: sucking strongly on one's own forearm for only 20 seconds will produce an area of redness and petechiae. Repetition of abnormal stress on the nipple for several minutes several times daily almost inevitably leads to tenderness, soreness, and often cracking of the nipple. Treatment of areolar engorgement is, therefore, directed toward enabling the baby to get his mouth in proper position on the breast to compress the sinuses without undue difficulty. Massaging the areolar area and expressing milk until the area is softened make it possible for the baby to nurse correctly, without trauma to the nipple. Areolar expression consists in placing the thumb and forefinger at the margin of the skin and the areola (fig. 1*B*), pressing back in toward the chest, and then bringing the fingers together, rhythmically, approximating the action of the baby's jaws. Even if milk does not come dripping out, massage for five minutes on each breast before nursing tends to soften the area. In helping the baby to start nursing, the mother should compress the breast with thumb and forefinger (or two fingers, if she prefers) placed just behind the areolar area, in a position similar to the start of areolar expression; this is good nursing procedure at any time when the baby is having trouble getting hold of the breast, engorged or not.

Peripheral Engorgement and Its Treatment: Whereas engorgement in the areolar area causes no discomfort except for the ensuing sore nipples, peripheral engorgement may give rise to pronounced discomfort. There is much variation in the degree of engorgement. With moderately severe peripheral engorgement the breasts become full, hard, and tender. The skin is often shiny and occasionally reddened. It is difficult to express milk. In extreme cases the amount of engorgement is astounding, and the breasts are "hard as boards." The mother complains of aching and throbbing, and, when she moves, the pressure on the breasts causes exquisite pain. This is most distressing in the axillas, and the mother may lie perfectly flat and motionless because of this tenderness. At night her rest is interrupted, and she is able to sleep only in "catnaps."

The condition commonly referred to as "caked breast," which is more likely to occur in the post-hospital period, is caused by the engorgement of only one or two lobules giving rise to localized hardness. If this causes discomfort, treatment similar to that for generalized engorgement should be used.

Relief of the mother's discomfort should be the first consideration in the treatment of engorgement. To accomplish this, codeine and aspirin are prescribed every four hours when indicated. Icebags used for short periods between feedings usually provide symptomatic relief, presumably by decreasing the vascularity; however, one cannot be dogmatic about the use of cold applications, since many mothers receive considerable relief from warm applications. A binder that lifts the breasts provides support and alleviates in particular the tenderness in the axillas and dependent parts of the breasts. The straps must come up over the shoulders and be taut. A binder that simply presses the breasts in toward the chest is of no value at

11. Olmsted, R. W., and Jackson, E. B.: Self-Demand Feeding in the First Weeks of Life, Pediatrics (pt. 1) 6: 396 (Sept.) 1950.

all. Further relief is afforded the mother by expression of milk, as will be described below. If the mother's discomfort is not promptly relieved, her patience and enjoyment will be rapidly dissipated; she may find the difficulty intolerable and discontinue breast feeding.

A second problem of unrelieved moderate or severe engorgement may be diminution of the milk supply. The following explanation for this is offered on the basis of clinical experience. In the process of lactation, milk is secreted until the alveolar back-pressure reaches a certain level, at which point the secretion is inhibited. Normally, the baby empties the breasts sufficiently at each nursing, so that this level is not reached and secretion continues. If the breast is repeatedly inadequately emptied for any reason over a period of a few days, the inhibiting level of back-pressure is consistently maintained and the milk supply decreases. This may be the case when engorgement is present to such a degree that the baby has difficulty sucking and is unable to empty the breasts.

In the following discussion of the treatment of engorged breasts, it should be kept in mind that most cases are relieved without much treatment. In the rare, severe cases, however, all methods of relief may be called into use. The principal methods for relieving engorgement are nursing the baby, manual expression, warm applications (at about 110 F), drugs, and breast pumps.

If the degree of engorgement is minimal, and the baby is able to grasp the nipple well, an attempt should be made to nurse the baby. This method may be most effectively used when the infant is easily available to the mother. It is often necessary to use areolar expression to enable the baby to get a good grasp. In most cases of moderate or severe engorgement, the baby's appetite is not great enough to provide sufficient relief. In other cases the nipples become cracked secondary to the poor nursing due to the engorgement, and it is then advisable to discontinue nursing for 24 to 48 hours.

Manual expression is of two types: areolar, as described above, and complete. Complete expression consists of placing the fingers on the periphery of the breast and gradually massaging centrally toward the nipple.[3] With this action, the milk is worked down into the sinuses, from which the milk is expressed as in areolar expression. Ointment must be used on the periphery of the breasts to prevent irritation from the massaging fingers; however, it is not used on the areolar area, because it causes the fingers to slip. The application of warm soaks to the breast before expression usually increases the effectiveness of the procedure. The expression is done for short periods when indicated; it may be done once or several times a day. The process often fatigues the mother, and for this reason long periods of expression are avoided. It is better to have a mother's breasts remain slightly engorged than to have her exhausted by the expression.

For the practical use of manual expression as a technique of relieving engorgement in hospital maternity care, it has been found essential to have available at least one graduate nurse experienced in the procedure, who can teach the mothers and other nurses. Although the technique can be learned after three to four demonstrations, it takes a considerable period of time before an inexperienced nurse develops confidence in her ability to carry out the technique effectively. However, enough can be learned over a short period to enable a nurse to offer significant assistance to the mothers. When the mother learns from the experienced graduate nurse how to express her milk, she is frequently able to assume full responsibility for using the technique herself. It is advantageous for the mother to know how to express her own milk for two reasons: First, she knows best how much pressure can be exerted on her breasts without causing pain, and, second, when she leaves the hospital, she can continue to use the technique if it is needed. The period during which expression of milk is necessary to relieve engorgement usually does not exceed two or three days. It is important to tell the mothers that this is not a permanent accompaniment of breast feeding but a temporary obstacle only.

Warm applications have been found most effective in conjunction with complete expression. If neither the nurse nor the mother feels confident to do manual expression, warm applications alone may be used before and after each nursing. One might think that heat would aggravate the engorgement by increasing the vascularity, but it has been our experience that it stimulates the flow of milk and relieves the pressure within the breast.

Drugs designed to depress the milk supply in nursing mothers were not used during the time covered by our observations. Diethylstilbestrol and related estrogen-like compounds are reportedly effective in the treatment of engorgement, but there is a possibility that the mother may lose her milk supply from overdosage.

Breast pumps have been used so rarely, either in the rooming-in units or elsewhere on the maternity service, that we have too little experience to judge their usefulness. In most pumps, the basic principle is one of sucking the milk out by the application of a strong negative pressure, unlike that of the baby's nursing. The result of suction on the forearm has been described. Waller tells of seeing a nipple turn black with the use (or misuse) of a pump.[3] However, the judicious use of hand breast pumps is indicated in the absence of a nurse who is trained in manual expression or when a mother expresses distaste for manual expression.

Cracked Nipples.—When a mother complains of nipple tenderness or pain that persists throughout the nursing period, the nursing procedure should be observed (since incorrect grasp is believed to be a frequent cause of cracked nipples) and the nipples should be examined carefully under a good light. If the baby is not grasping the nipple properly, measures previously discussed should be taken to enable him to do so. If actual cracks or subepithelial petechiae (often a precursor to cracking) are found to be already present, healing measures must be taken. Nursing is discontinued on the involved breast for 24 to 48 hours, depending on the severity of the lesion. If only one nipple has lesions, the baby is allowed to nurse on the uninvolved breast during this period. Usually the unsuckled breast needs to be expressed during this abstinence. A healing ointment, such as the balsam of Peru ointment previously described, may be used on the nipples. At the end of the 24 to 48 hours there is a visible improvement in the majority of cases. The baby is then put to the involved breast, and, if no abnormal pain is present, he is allowed to nurse for three minutes. During the following 24 hours the baby is allowed to

nurse for five minutes at each feeding (not oftener than every two hours); 10 minutes for the second 24 hours; and then up to 15 minutes. If at any time the exquisite pain returns, another 12 hours of abstinence is advised. These instructions are varied to suit the individual problem, just as is every other technique described in this paper. But with such a general regimen, cracks have healed rapidly, particularly when treatment has been instituted before the lesions are well developed.

Although taking the baby off the involved breast, with the coincident use of manual expression, is advised in most instances of cracked nipples, there are some situations in which the use of a nipple shield may be recommended. There are, for example, some mothers who are very easily discouraged, out of proportion to the actual difficulty; interruption of breast feeding and the attendant bother of manual expression presents so great an obstacle that they readily relinquish the attempt to nurse. There is also the rare mother who refuses to stop nursing even temporarily or becomes extremely unhappy over the suggestion of temporary interruption, because the ability to satisfy the baby at breast at each feeding has some special psychological significance for her. Nipple shields may also be advised when the mother's milk supply is already so low that it is feared that abstinence from breast feeding, plus lack of manual expression (because the breasts do not fill to the point of requiring it), may constitute such inadequate stimulation to lactation that it may be very difficult to reestablish the milk supply. Note should be taken of the possible disadvantage of the use of a shield for cracked nipples. When the baby nurses on the rubber nipple, the mother's nipple is usually drawn out to a considerable degree. This action in itself may delay healing or cause further trauma to the nipple.

Tender Nipples.—The majority of mothers experience twinges of pain when the baby first begins to suck during the first few days of nursing. They may often be observed to wince with the initial grasp, but after a minute or two the pain disappears. This initial grasp pain is regarded as a normal phenomenon.

Some mothers complain that the nipples remain tender throughout each nursing period, even though the baby appears to be nursing correctly and there is no visible evidence of trauma. This tenderness may be attributed to the overenergetic sucking of a very vigorous baby of the "barracuda" type, or to hypersensitivity of the mother's nipple due to constitutional factors such as fair skin, or, perhaps, to lack of preparation during pregnancy. If none of these explanations seems applicable, the physician should be alert to the possibility of some conflict in the mother about nursing. Nipple shields have been found helpful in the treatment of nipple tenderness; however, since the shields interfere with the physiological process of nursing, whereby the lacteal sinuses are compressed by the baby's mouth, the mothers are encouraged to give them up after two or three days.

Flat or Small Nipples.—In instances of flat or small nipples, mothers are advised to compress the areolar area so as to form as much of a nipple as possible for the infant to grasp. If this is not successful, use of nipple shields during the first few minutes of each nursing period may draw out the nipple sufficiently for the infant to grasp it directly without the shield. When the baby learns how to suck, and the breasts have become softer after the first few days of lactation, the baby is able in most instances to nurse altogether without the shield. It is necessary to discuss with the mothers the possibility that the baby may be able to nurse in spite of flat nipples, since otherwise they are apt to think they will have to depend on the use of shields as long as they nurse.

Mastitis.—The term mastitis, as used here, does not refer to "caked breast" but to an infectious process in the breast producing localized tenderness, redness, and heat, together with a constitutional reaction of fever, malaise, and often nausea and vomiting.

With the shortening of the hospital stay of the mother to six days or less, mastitis is more likely to develop when the patient goes home than while she is in the hospital. Since follow-up information has been obtained on the majority of nursing mothers in this clinic during the years 1948 and 1949, it is possible to state that the incidence of mastitis has been very small. When it has occurred, its management has been carried out by the obstetricians; however, in an effort to coordinate therapy with recommendations about nursing, the obstetricians often conferred with the pediatricians. The mastitis was rarely severe enough to require incision and drainage and could accordingly be successfully treated on an outpatient basis with parenterally administered antibiotics. The baby was kept off the infected breast for several days but nursed on the noninfected side. Codeine was prescribed for relief of pain. Hot packs were used on the affected breast to stimulate a spontaneous flow of milk and thus reduce the engorgement. Manual expression was resorted to only if hot packs were ineffective.

As a result of the cooperation between obstetricians and pediatricians, some of the mothers were able to continue nursing. Mastitis is therefore not necessarily a reason for permanent weaning. It should be emphasized that the decision must be based on the individual circumstances, one of the most important factors being the mother's desire to continue or discontinue breast feeding.

POST-HOSPITAL PERIOD

The present practice of sending mothers and babies home from the hospital less than a week after delivery means that there are only about three days after the milk comes in during which the mother can receive appropriate help and guidance from the nurses and physicians. Although lactation has always begun during the hospital stay, it is not usually well established for several more days and, in some instances, not for a few weeks. This means that many of the problems of breast feeding that were formerly observed and dealt with in the hospital now occur in the home and must be handled through home visits and telephone calls by the pediatrician, without someone on hand, like the nurses in the hospital, to give immediate, practical help, reassurance, and encouragement. The visiting nurses are very helpful in this respect, but they are not always in the home when help is most needed, and the amount of time they can give to any individual mother is necessarily limited. The presence in the home of a competent, understanding woman to help with the many little problems that arise can facilitate the entire home adjustment of inexperienced mothers. Such help, however, is not easily available.

Many mothers experience a decrease in the milk supply immediately after going home from the hospital. This is often transitory; the milk comes in again when the first excitement of homecoming passes and the mother is able to rest. The mother is advised to continue nursing on both breasts at each feeding. If, after two weeks at home, the milk supply seems adequate, she may use only one breast at each feeding, if she prefers. If the milk supply tends to decrease at any time, she may go back to both breasts at each feeding.

The mother should have a well-fitting brassière with good uplift. Most brassières designed for nursing mothers have soft, removable, washable pads that absorb the leaking milk between feedings; if not, the mother can improvise a small pad from any clean, absorbent material. Excessive leakage is more likely to occur at night when intervals between feedings tend to be longer, and because of this many mothers use a diaper or small towel folded inside the brassière.

Ointment is advised for nipple care at home only if tenderness develops. In the absence of nipple tenderness, the baby is allowed to nurse as long as he wishes. If the baby suckles so long that it tires the mother, the whole situation should be reviewed in detail and appropriate recommendations made; for instance, the use of a formula may be indicated, at least temporarily. Adequate diet and sufficient rest, important in all phases of gestation and throughout the hospital period, should be reemphasized for the nursing mother, with advice and suggestions as to how she may best achieve both, now that she is at home with the baby.

Mothers are told about the draught or "let-down" reflex, which is accompanied by definite sensations that the milk is "coming in" to fill the breasts. It is usually first felt after the mother leaves the hospital, sometime between the third and the eighth week. It seems to occur earlier and more regularly in multiparas. It is stimulated by various factors that are associated with anticipation or initiation of feeding the baby. With the establishment of the draught reflex, the ductules contract and force the milk out of the breast. Consequently, relatively little active sucking is demanded of the baby; he obtains the milk more easily and is more quickly satisfied. Some mothers worry that the baby's appetite is falling off when he appears content to stop nursing after 5 or 10 minutes instead of after 15 or 20 minutes. It is therefore advisable to explain to mothers that the nursing time may be shorter after the draught reflex is established.

Once a mother's milk supply is well established, she is encouraged to offer the baby an occasional bottle of milk mixture in place of a feeding at breast. This is to accustom the baby to the bottle in the event that the mother should, for some reason, have to miss one or more nursing periods or give up nursing suddenly. Sometimes a baby will completely refuse to take milk mixture from a bottle if it is offered to him for the first time after he is 3 or 4 months old, thus obviating the possibility of the mother's leaving the baby for business or recreational purposes. This is not desirable, for the nursing mother should not have the feeling of being completely tied down. Fathers usually appreciate the plan for the baby to have an occasional bottle, since it gives them an opportunity to feed the baby.

We have observed several babies who have intermittently refused the breast for a week or two at about the age of 3 to 4 months, even though the milk supply seemed undiminished. In such instances the baby was simply offered a bottle whenever he refused the breast, and he subsequently returned to contented nursing. A mother whose baby refuses the breast at this age, when nursing has apparently been going well, may feel that it is necessarily an indication that weaning should begin, unless the pediatrician explains the possible transitory nature of the refusal.

The duration of breast feeding, once it has been successfully established, depends on the mother's condition, her desires, and the baby's reactions. The commoner reasons for weaning are desire of the mother to discontinue nursing, decrease in amount of breast milk, the baby's persistent refusal of the breast, and separation of the mother and infant owing to illness or other emergency. In assisting a mother to reach a decision regarding weaning, the physician should consider carefully the emotional significance of the breast feeding to the individual mother.

The process of weaning may be sudden or gradual, depending on individual circumstances. Under normal circumstances, gradual weaning is preferable, since it gives the mother and child an opportunity to adjust to the change. The number of daily bottles or cup feedings is progressively increased until the infant is off breast feedings completely. The order in which the breast feedings are omitted is determined by the mother's preference. Her preference will depend on the relative fulness of her breasts at various times, her state of fatigue or relaxation, and her feelings of relative convenience in providing the infant with other foods. The weaning process may be accomplished in a period of several days or several weeks. If, owing to an emergency, it must be abrupt, a snug binder or brassière and limitation of fluids are advised, and codeine and aspirin are prescribed as needed.

Many mothers prefer to wean the baby directly to the cup. This is satisfactory if the baby accepts the cup readily; however, it should not be a primary aim, since many infants seem to require the continuation of sucking provided by bottle feeding. A baby nursed at least five months may be started on whole unboiled pasteurized milk. This obviates the necessity of preparing a formula.

SUMMARY

A general plan for the management of breast feeding is described. Avoidance of rigid rules and modification of technical details to suit the individual needs of the mother and baby are advocated. Prenatal preparation for breast feeding and various aspects of the management of breast feeding in the hospital and at home are considered. The principal complications are discussed, with recommendations for treatment.

Sympathetic interest extended to the nursing couple by the attending physicians and nurses, and their careful attention to all aspects of the breast feeding situation, even seemingly minor points, are held to be prime requisites for successful management of breast feeding in a hospital maternity service.

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FIVE YEAR FOLLOW-UP IN ONE HUNDRED CASES OF BILATERAL PREFRONTAL LOBOTOMY

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Lobotomy for the treatment of chronic mental illness was undertaken at the Boston Psychopathic Hospital in October, 1943. The procedure utilized in the first 450 cases was the bilateral prefrontal lobotomy, as developed by Dr. James L. Poppen and his associates of the neurological division of Lahey Clinic. In "Studies in Lobotomy"[1] a careful clinical follow-up at the one to four year postlobotomy period was given. The present study is a five year follow-up of the first 100 cases in the series.

POPULATION STUDIED

In these first 100 cases, the operation was done between October, 1943, and April, 1946. All the patients operated on had chronic mental illness for which prognosis without operation was considered hopeless. Fifty were single, 42 married, 2 divorced, 2 widowed, and 1 separated. About half the patients had graduated from high school. Most were skilled laborers, clerical employees, and housekeepers. About half had been ill for 5 years or less, one-fourth had been ill for 5 to 10 years, and one-fourth had been ill for 10 years or longer. The average duration of illness was a little over six years. About half the patients had been hospitalized for 2 years or less, one-fourth for 3 to 10 years, and one-fourth for 10 years or longer. The average length of hospitalization was four years, two years less than the average length of illness. The vast majority of the patients had received some form of somatic treatment; electric shock therapy was given to half the patients, and insulin and pentylenetetrazole (metrazol®) were given to many of these and to others.

TABLE 1.—*Comparison Between Preoperative and Postoperative Residence of 100 Prefrontal Lobotomy Patients**

	Pre-operative		Postoperative			
			1 to 4 Yr.		5 Yr.	
	No.	%	No.	%	No.	%
Community	0	0	44	48	40	47
Hospital	40†	40	48	52	45	53
	60‡	60	..	..	..	..
Unknown	0	..	0	..	3	..
Died	0	..	8	..	12	..
Total	100	100	100	100	100	100

* The percentages given were calculated on the basis of the total number of patients for whom information was available.
† Boston Psychopathic Hospital.
‡ Other institutions.

RESULTS

Residence.—Table 1 shows a comparison of the residence of the 100 patients at the one to four year and five year follow-ups with their residence in the preoperative period. Before operation, 40 patients were admitted to Boston Psychopathic Hospital directly from the community, and 60 transferred from other hospitals. In the 40 who were admitted directly from the community, the average duration of illness was six and one-half years and the average length of previous hospitalization was two years and three months. The 60 patients admitted to Boston Psychopathic Hospital from other hospitals had illness and hospitalization of longer duration. They had been receiving essentially custodial care in state or private institutions.

At one to four years after operation, 44 of the original 100 patients were residing at home, 48 were in state hospitals, and 8 had died. There was, therefore, a significant change in residence at one to four years after operation compared with the preoperative period, with 48% of the survivors living in the community. At five years, 47% were living in the community. These figures suggest that during five years there was little variation in the percentage of patients who could adjust outside the hospital. The trend of returning to the hospital among community patients whose adjustment deteriorated was almost completely counterbalanced by an opposite trend of returning to the community among hospital patients with improving adjustment.

Mental Status.—Table 2 gives the changes in mental status from the preoperative period to the one to four year and five year postoperative follow-up periods. A "good" rating was given only to patients who, after the operation, were relieved of all mental symptoms characterizing the psychosis. A "fair" rating was given to patients who, after the operation, experienced a partial remission of most if not all symptoms or complete remission of at least a few important symptoms. If, for example, delusions and hallucinations were less vivid, anxiety diminished, and disorganization reduced or if complete remission was obtained in one such category, a rating of fair mental status was given. "Poor" mental status indicated that the psychotic condition remained essentially unchanged.

Table 2 shows that no patient was considered to have good mental status preoperatively. At the one to four year follow-up 29 of the 100 were given a good rating. This represents 33% of those who could be rated. At five years, 23 patients were rated as having good mental status, representing 29% of those who could be rated. There was, therefore, a general tendency for the improvement in mental status after lobotomy to be maintained.

Five patients had fair preoperative mental status ratings; 19 (21%) were rated fair at one to four years and 27 (34%) at five years after the operation. Ninety-two (95%) patients were rated poor preoperatively; 41 (46%) were rated poor at one to four years postoperatively, and 29 (37%) were rated poor at five years

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1. Studies in Lobotomy, Greenblatt, M.; Anot, R., and Solomon, H., editors, New York, Grune & Stratton, Inc., 1950.

postoperatively. Thus, there appeared to be a definite tendency for some patients rated poor at one to four years to move into the fair category at five years. There is no evidence of deterioration of improvement over five years, but there is a slight suggestion that some patients with postoperative ratings of poor made modest gains.

Work Adjustment.—Work adjustment was rated for four periods in the patient's life: before illness, during psychosis, one to four years postoperatively, and five years postoperatively (table 3). The patients were rated as "good," "fair," or "poor." A good work adjustment rating was given to patients who were employed fulltime and productively, either at home, as in the case of housewives, or in industry where they were earning a regular salary. In some instances a good work adjustment rating was given to patients who were working steadily and fulltime in the hospital on some industrial project. Fair work adjustment indicated that the patient worked intermittently, that productivity was not up to expectations, or that performance was only partially satisfactory. The housewife might get her work done but needed assistance or prodding. A hospital worker in this category would be given less complicated tasks to do, in which speed, volume of output, or precision were not important. A community worker would make intermittent attempts to work or would be relieved often of occupational responsibility because of inadequate performance. Poor work adjustment indicated that the patient was unemployed in the hospital, home, or community or was totally inadequate in his work activity.

It can be seen in table 3 that patients who were employed full time and productively constituted about one-fourth of the total group at both the one to four year mark and the five year mark. Thus, performance at this level of adequacy was sustained. There seemed to be a slight decrease in the number rated fair and a slight increase in the number rated poor at the five year follow-up as compared with the one to four year follow-up. It is clear, however, that although illness meant a striking decline in work capacity, the operation was followed by a definite improvement that was largely sustained over five years.

TABLE 2.—*Comparison Between Preoperative and Postoperative Mental Status of 100 Prefrontal Lobotomy Patients**

	Pre-operative		Postoperative 1 to 4 Yr.		Postoperative 5 Yr.	
	No.	%	No.	%	No.	%
Good	0	0	29	33	23	29
Fair	5	5	19	21	27	34
Poor	92	95	41	46	29	37
Unknown	3	..	3	..	9	..
Died	0	..	8	..	12	..
Total	100	100	100	100	100	100

* The percentages given were calculated on the basis of the total number of patients for whom information was available.

DEATHS

At the one to four year follow-up there were 8 deaths in these first 100 patients. These patients ranged in age from 28 to 75, the average age being 50. Only two of these deaths were related to the operation. The first occurred in a 42-year-old woman who, 11 days after operation, following progressive improvement, had a series of convulsive seizures that resulted in death. At postmortem examination the cause of death was given as acute interstitial pneumonia. The second occurred in a male patient, 75 years old, who died four months after the operation. He was considered a poor operative risk before surgery. Postmortem examination showed the following conditions: small subdural hemorrhage in both middle fossae, moderate cerebral arteriosclerosis, sclerosis of the coronary and pulmonary arteries and mitral valves, nephrosclerosis, edema and congestion of the pia mater, edema and emphysema of both lungs, generalized atrophy of all organs, and extreme emaciation. After operation, this patient's physical course was gradually but progressively downhill, and he became bedridden and malnourished. It was felt that death was probably related to lobotomy but not directly caused by the operation. Considerable importance was given to age and psychosis as factors in demise, especially since the patient often refused to eat. The other six patients died 2 to 21 months after operation of causes not attributable to the surgical treatment.

TABLE 3.—*Comparison of Preillness, Preoperative, and Postoperative Work Adjustment of 100 Prefrontal Lobotomy Patients**

	Pre-illness		Pre-operative		Postoperative 1 to 4 Yr.		Postoperative 5 Yr.	
	No.	%	No.	%	No.	%	No.	%
Good	63	66	2	2	25	28	20	25
Fair	28	30	16	17	27	30	20	25
Poor	4	4	78	81	37	42	39	50
Unknown	5	..	4	..	3	..	9	..
Died	0	..	0	..	8	..	12	..
Total	100	100	100	100	100	100	100	100

* The percentages given were calculated on the basis of the total number of patients for whom information was available.

At the five year follow-up an additional four patients had died, making a total of 12 patients who succumbed during the five years following frontal lobe surgery. None of the additional four deaths could be attributed to the operation. The mortality from operative causes in the first 100 cases was, therefore, 2%.

COMMENT

Since the final evaluation of any new treatment procedure depends on long term follow-up, this five year follow-up of the first 100 patients subjected to bilateral prefrontal lobotomy at the Boston Psychopathic Hospital was made. The observations are of especial interest because the potentialities of an irreversibly destructive brain operation as a remedial agent in long standing mental illness have been questioned repeatedly. The results indicate that bilateral prefrontal lobotomy is capable of effecting a rise in the level of adaptation of chronically mentally ill patients and that this rise is generally sustained over a five year period. Improvement in these patients is striking when their condition is compared to their preoperative state of deterioration; however, in most cases, improvement is not sufficient to reach the preillness level of adaptation.

The mortality in this series was 2%. Convulsive seizures occurred in 12% of the patients; the seizures were usually few in number and readily controlled by anticonvulsive therapy. Wetting, incontinence, and weight gain were essentially minor complications in these pa-

tients. More detailed evaluation of the level of adjustment of these patients in the area of life experiences, i. e., social, recreational, work, and sex experiences, and assessment of psychological functioning is now being prepared and will be reported in the near future.

Recent studies have been made at the Boston Psychopathic Hospital [2] to evaluate the relative therapeutic efficacy of several modifications of the standard operation. These investigations suggest that the results achieved by the standard operation may be improved on by the use of limited brain section. The bimedial operation, in particular, which involves cutting of only the medial halves of each frontal lobe in the coronal plane, seems especially promising, as revealed by follow-up studies during the first postoperative year. Eventually, a five year study of the latter group will be made for comparison with results in the present series of patients treated by the standard approach.

SUMMARY

The first 100 patients treated at the Boston Psychopathic Hospital with bilateral prefrontal lobotomy, or the standard operation as developed by Dr. James L. Poppen, were followed five years after the operation. Forty patients were residing in the community and 45 in hospitals, 12 had died, and 3 could not be traced.

Twenty-nine per cent of the patients on whom information was available were considered to be making a "good" work adjustment five years after operation; that is, they were earning a salary and their performance apparently satisfied their employers. If engaged as housewives, they were working full time and satisfactorily, so far as their relatives were concerned. In contrast, only 2% of the patients were considered to have had good work adjustment preoperatively, and 66% were considered to have had good work adjustment before their illness began.

Comparison of the adjustment five years postoperatively with that shown from 1 to 4 years postoperatively indicated that improvement after surgical treatment was generally maintained over five years. For the average patient, there was no significant deterioration of adjustment. Postoperative improvement generally was not up to the level of adjustment enjoyed by the patient before illness began, although it was considerably higher than the level of adjustment during illness and before operation. The operative mortality was 2%.

74 Fenwood Rd. (15).

2. Greenblatt, M., and Solomon, H.: Frontal Lobes and Schizophrenia: A Compilation of the Second Lobotomy Project at Boston Psychopathic Hospital, to be published.

VOLUNTARY HEALTH INSURANCE AND NERVOUS AND MENTAL DISEASE

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Health insurance is a complex subject, with many technical aspects. In this article our interest is primarily in adequate hospital and medical benefits for nervous and mental disorders. We review several representative plans, point out the grave defects in existing health insurance clauses regarding neuropsychiatric illnesses, and recommend improvements in the existing situation.

By the end of 1950 an estimated 77 million Americans carried some kind of hospitalization insurance. Over 54 million had at least partial protection against the costs of surgical care, and almost 22 million had additional insurance against expenses of other medical care.

This development is less than 20 years old. Group insurance of hospital expenses began in 1934, surgical expenses were included in 1939, and other medical costs in 1944. Such rapid development of all types, especially of benefits for surgical and medical costs, is thus phenomenal.

As would be expected, the rapid growth of health insurance plans has left many gaps. According to some authorities, it is feasible for voluntary health insurance plans to include up to three-fourths or more of hospital and medical expenses. Perhaps no more than 4 or 5 million persons have fairly comprehensive protection against hospital and medical expenses. Popular enthusiasm for adequate health insurance, however, is so great that these deficiencies are fast being compensated. What is equally important is the fact that neuropsychiatric disorders have not received due attention in the radical evolution of health insurance plans and have either been ignored or unsatisfactorily covered in insurable costs. These are facts to remember in considering the amount of benefits paid by current health insurance plans.

The major types of health insurance are group and individual policies offered by Blue Cross and Blue Shield plans, by commercial insurance companies, and by industrial or consumer groups. Blue Cross policies by the end of 1950 were held by about 37 million persons, and Blue Shield policies by about 18 million. Local Blue Cross plans included almost half of all policy holders carrying hospital insurance, and in 1949 provided for an estimated 70 to 80% of the insured individual's hospital expenses; the corresponding estimate for Blue Shield policy holders was about 45% of medical expenses. Special plans such as those sponsored by Consolidated Edison of New York or by the Permanente Foundation were said to cover more than 80% of the hospital and medical costs for their beneficiaries.

The rapid growth in numbers of persons included by all plans has coincided with a much higher quality of coverage. Group policies have offered benefits for longer periods, shortened waiting periods, extended age limits, and included maternity benefits along with many miscel-

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laneous benefits. To a considerable extent individual policies have similarly improved. A review of 153 companies supplying such information showed that by 1950 about 32% of their policies excluded all benefits for nervous and mental disorders, as compared with 70% in 1945, so that in this respect there was a gain of 38% in five years. In the same period, exclusion of benefits for treatment of alcoholic and other drug addictions and of attempted suicides had similarly been reduced.

These real improvements in all types of health insurance plans deserve great praise. The rapid development in effective insurance against many of the costs of illness and accident has been most striking. In one field only has protection lagged far behind, in that of nervous and mental disorders and other psychiatric conditions. In some respects the attitude of insurance and even of hospital officials toward these disorders is that of 40 or 50 years ago. Despite the tremendous advances in psychiatric diagnosis and treatment in recent years, exclusions or limitations upon benefits for psychiatric disorders, together with grave discrepancies among the few benefits allowed for these conditions, are the rule in nearly all policies.

An examination of "Blue Cross Guide," published in January, 1951, by the Blue Cross Commission,[1] illustrates these severe limitations. Of 84 plans, 16 exclude psychiatric disorders completely. Six plans allow certain benefits for hospitalization of alcoholism, drug addiction, and self-inflicted injuries; two plans include some protection for all three conditions and four plans cover one or two of these conditions. This means that 22, or more than a fourth of the 84 plans, discriminate wholly or in part against hospitalization benefits for nervous and mental disorders.

Of the 20 plans that offer a 7 to 14-day hospitalization period for mental disorders, many explicitly state and others imply that this clause is meant to cover the diagnostic period or a brief trial treatment. For example, a plan in New York state limits hospitalization to 14 days only, on an experimental basis, for mental patients admitted to a specified general hospital with a psychiatric department. Another plan allows 10 days per certificate year for patients with a mental and nervous disorder admitted to an accredited general hospital. A third plan limits the hospitalization for mental disorders and also for drug or alcohol addiction to 15 days in a general hospital. A plan in a northwestern state includes coverage for patients with mental disorder and chronic alcoholism acceptable to member hospitals—for seven days in a patient's lifetime. Similarly, a southwestern state plan permits a 10-day hospitalization period "during the life of the member." A plan in one of the New England states restricts benefits for mental or nervous conditions to 10 days' care "during life of member except 14 days per year is allowed for major surgery." Certain other plans make exceptions for surgery in nervous and mental diseases, attempting to include benefits for certain neurosurgical procedures. Most of the 20 plans include coverage for alcohol and drug addiction, and 5 provide benefits for self-inflicted injuries.

There are six hospitalization plans allowing a 21-day period. One plan covers almost all neuropsychiatric disorders for 21 days during any certificate year, and is by far the most liberal one of the group, allowing benefits for a 3-week period.

A 30 to 31-day period, with varying restrictions, is allowed in some 15 hospitalization plans, 4 of which limit benefits to patients admitted to member hospitals or to nonprofit hospitals only. In four plans the period is good for once in a lifetime. A North Dakota plan excludes psychoses on the standard certificate, but allows 30 days on the comprehensive plan "for each continuous period of hospital confinement or successive periods" separated by at least 6 months.

One hospitalization plan includes hospitalization for mental patients for a single admission only, limited to 45 days. An eastern state plan allows the same 60-day period in all illnesses, but restricts hospitalization for mental disorders to once in a lifetime instead of once in a certificate year, as in other medical disorders. In 17 plans the exact number of days is not specified.

Of the five Blue Cross Canadian hospitalization plans, the most liberal type of policy limits hospitalization for mental and nervous diseases to 51 days in all, as compared with 51 days during the first year and an accrued maximum of 201 days for other medical and surgical disorders. This fairly good plan includes hospital benefits for treatment of alcoholism, drug addiction, and self-inflicted injuries.

This general picture describes the Blue Cross hospitalization plans now affecting more than 40 million subscribers in the United States, Canada, and Puerto Rico. Details of these plans indicate that few or no qualified psychiatrists have been consulted in setting up or testing out the program of benefits. The vague terminology and curious discrepancies among various neuropsychiatric disorders excluded from or included in hospitalization benefits clearly show the lack of competent psychiatric advice. For example, an outstate New York plan provides benefits for nervous conditions but excludes those for mental disease. This completely unscientific terminology ignores modern psychiatric knowledge that all so-called nervousness means some form of mental illness. The implication that nervous conditions result from diseased nerves and other specific physical causes reflects the lay concept of some necessarily physical origin of emotional illness, which is to be tracked down and treated.

Similar contradictions appear in other policy inclusions and exclusions. Both certificates in the plan of a southern state allow benefits for nervous conditions and self-inflicted injuries but exclude "mental disorders, alcoholism and drug addiction." Again all these conditions are symptomatic of mental illness. Another plan in the same state includes hospitalization for self-inflicted injuries but excludes it for psychiatric disorders. One plan goes so far as to exclude hospitalization for "intentional self-inflicted injuries," but would presumably provide it

1. Our survey of these plans was terminated in 1951. This material was included in our scientific exhibit, "Psychiatric Treatment in General Hospitals in the United States and Canada," presented at the 1950 and 1951 meetings of the American Medical Association and the 1951 meeting of the American Psychiatric Association. The 1952 revised editions of "Blue Cross Guide" and of "Voluntary Prepayment Medical Care Plans" contain some changes and modifications from plans described in the 1951 booklets. In general, about 12% more persons in 1951 had protection against hospital expense and 20% more had surgical expense protection than in 1950. Medical expense protection, the newest form in the voluntary health field, increased 28% over the amount in 1950, according to recent over-all figures.

for such self-inflicted damage as the accidental drug overdosage so commonly seen in barbiturate addiction.

In these and many other ways the policies attempt to differentiate, however unscientifically, among various types of psychiatric disorders. They dodge a definition of mental illness. If alcoholism, drug addiction, or use of drugs that stops short of addiction are diseases, they should then be classed with other treatable medical diseases. If, however, benefits for care of these disorders prove to be economically unsound, all should be uniformly excluded. At present about half the hospitalization plans exclude alcoholism, drug addiction, and self-inflicted injuries while the other half include one, two, or all three conditions, as if they had been chosen by arbitrary exclusion.

The terminology of the policies often reflects the general confusion. The nonmedical term of insanity occasionally appears, e. g., in a clause excluding from benefits patients with "mental disorders, insanity, alcoholism, drug addiction." An unequivocal statement excluding all mental illness would be far more sound. Another example of loose terminology and hard differentiation is the plan that includes benefits in case of "demonstrable organic pathological diseases of the brain, spinal cord and peripheral nervous system." Similarly, several plans allow benefits for surgical treatment of the identical diseases in which benefits for other medical care are excluded. Again, one sees the attempt to trace mental illness to physical causes or defects, with the idea that only these can be definitely treated or cured. There is the implication that mental illness is otherwise too intangible for diagnosis or treatment.

A curious exclusion is the use of shock therapy. Several policies interpret the term in its most literal meaning, and imply a hazardous treatment. In one certificate plan of a midwestern state, use of shock therapy revokes the benefits of the 30-day hospitalization otherwise provided in treatment of nervous and mental disorders. Another plan similarly excludes benefits if shock therapy is used, while its use in a third plan limits the otherwise more liberal benefits to a 10-day period. This unwise exclusion of accepted medical treatment prevents specific therapy that relieves many serious psychotic episodes within a few weeks. Such exclusions tie the physician's hands, force him to withhold the treatment of choice in such illnesses as acute depressions, and thereby contribute to the many thousands of yearly suicides and attempts at suicide, to name only one serious result. The stipulations as to shock therapy show ignorance of the good results obtained in many cases with this therapeutic adjunct, which in competent hands and except for a very few contraindications is a safe procedure.

Many plans specify the type of hospital to which the psychiatric patient may be admitted if benefits are allowed. Policies of at least 30 plans specify an accredited general hospital, member hospital, or local contracting Blue Cross hospital. Several policies exclude psychiatric patients by including only those patients for which member hospitals provide regular services. The policies thus take advantage of the fact that most general hospitals do not have a psychiatric department. A very few policies pay limited benefits in the special department of a nonprofit hospital.

Doubtless these and other exclusions or limitations are made in the effort to distinguish acute treatable cases. If so, they are steps in the right direction, but a definite, uniform list of benefits and their conditions of application would be much more satisfactory. An all-or-none approach is the only fair and just one. The attempt to differentiate among mental illnesses results in nothing but dissatisfactions and subterfuges.

Wholly understandable are such exclusions as rest cures and care in rest homes and costs of care in state and federal hospitals. If, however, the exclusion of benefits in cases for which "hospital care is available under the laws of any state, political subdivision, or United States" rests on an economic basis, it should be so stated, and some attempt should be made to provide care for patients who do not wish to go to public hospitals. Obviously, such insurance would cost more than that for other services.

Hospitalization plans like one in Texas and another in North Dakota, to be described later, come close to meeting basic insurance needs in the field of psychiatric treatment. Similar plans offered generally throughout the country would go far to overcome public dissatisfactions. In our personal experience, most families think hospitalization policies include nervous and mental disease; they are gravely dissatisfied when they find out that benefits do not cover hospitalization of the mental patient. Many are thus forced to seek state hospitalization, usually under commitment procedures, with all the accompanying stigma.

Hospitalization insurance plans in our opinion must realistically face the problem of benefits for all major illnesses, whether they are the so-called physical, mental, or psychosomatic aspects of disease. The present methods of discriminating among different types of nervous and mental disorders, the antiquated terminology, and other hairsplitting in diagnoses and methods of treatment indicate lack of competent medical and psychiatric consultation in setting up the various plans.

It is difficult to compare cost of hospitalization insurance with insurance for other medical care. Of the 94 medical care plans reviewed in its 1951 edition by the Council on Medical Care of the American Medical Association, 76 are approved plans, 7 are plans not approved by a medical society, and 11 are Canadian plans. Again, it is clear that benefits in this field are rapidly increasing; 12 medical society plans make no specific exclusions, 8 offer benefits restricted as to duration, and 6 provide benefits prior to diagnosis. Time limitations vary from 7 to 30 days a year during the life of the contract; waiting periods vary from 9 months to a year. A Virginia plan allowing 10 days after a 1-year waiting period was described in the 1951 booklet as defining nervous and mental conditions as "any and all conditions normally treated by psychiatrists, neurologists and other doctors who primarily care for such cases, and shall include any condition treated by these specialists."

Of the 21 approved plans that exclude benefits in nervous and mental conditions, 3 deny benefits for medical services in "cases of insanity" and 2 specifically exclude costs of "psychiatric treatment." Of 13 approved plans that provide surgical benefits, only 4 explicitly deny them for surgery in nervous and mental diseases. Of all

Canadian plans for medical care insurance, four exclude all benefits after the diagnosis of mental disorder has been made, and six exclude all neuropsychiatric disorders from benefits.

Inspection of the various Blue Cross and Blue Shield plans indicates that two Texas plans (Group Hospital Service, Inc., and Group Medical and Surgical Service, Dallas, two separate corporations and contracts, with the same governing body) offer a good many desirable features. Both companies have two types of policies, preferred and comprehensive. Like other illnesses, psychiatric disorders existing prior to the issuance of the policy are excluded from benefits. This proviso does not commonly exclude the majority of acute psychotic illnesses. The preferred hospitalization plan pays up to $7.50 a day for 70 days; separate admissions are permissible for the same disorder but require a 90-day interval. The parallel comprehensive policy pays up to $5 a day for 30 days, plus half the amount for 90 additional days in any one year. The preferred medical benefit plan pays $5 a day for 30 days in a year, while the parallel comprehensive medical care policy, which pays $3 a day, begins the fourth day of the hospital stay and may extend to 30 days in any one year.

These particular Blue Cross and Blue Shield plans are more liberal than are most so-called nonprofit plans and have worked out well. No effort has so far been made to modify the pertinent clauses. As a psychiatrist in the area served by these companies explains, many persons do not demand coverage of psychiatric disorders because of society's stigma upon them, and many insurance plans take advantage of this attitude to evade the added risks connected with these illnesses.

Of several industrial plans examined, the two outstanding ones were those of the Endicott Johnson Corporation and of the American Telephone and Telegraph Company. The Endicott Johnson plan is designed to serve workers and their families, including dependent children under age 18. Two clinics at separate locations and a general hospital, with departments and staff fully approved by the American College of Surgeons, are used to provide complete service. The health program includes all medical specialties on a group practice basis, without restrictions as to illnesses for which hospital and medical benefits are provided. All patients, including tuberculous patients and the mentally ill, are cared for "without reservations." The plan is carried as an operative cost by the company. In 1950 the cost to the company was $116.80 per worker, and approximately $42 per eligible person, for the 18,000 workers and their dependents. A total of about 50,000 persons were thus protected, according to a booklet issued by the company.

One of the older industrial plans, the American Telephone and Telegraph Company plan, covers without restriction all employees who have served the company two years. Benefits begin with 4 weeks' full pay and 9 weeks' half pay, and increase to a full year's pay after 25 years of service. The company has issued no information regarding the costs of this plan.

In our experience all psychiatrists constantly see patients admitted to hospitals for extensive diagnostic surveys and for treatment of supposed organic diseases. Many ailments are primarily emotional disturbances, as our several studies have shown.[2] An earlier paper [3] reviewed in detail 150 of 500 hospitalized patients with emotional disorders previously treated by 811 procedures for serious organic disease. The mistaken medical and surgical treatments had proved costly to the patient in time and money. We also constantly treat patients who have received insurance benefits for repeated hospitalization because of medical or surgical therapy based on erroneous diagnoses. When they finally come for psychiatric treatment, they have no insurance protection. The cost to all companies of these failures, due to early inadequate diagnoses, must be tremendous.

Recently we made an indirect approach to this problem. We reviewed [4] 500 consecutive records of patients admitted in 1950 to a general hospital (a contracting hospital for a voluntary hospital insurance plan). Careful review and judgment of the records showed that definite emotional illnesses had been treated as organic disturbances in at least 10% of cases. Such observations as chronic appendicitis, cervicitis, and menopausal syndrome, for example, disguised either psychoneuroses or a full blown involutional melancholia. Minimal organic findings and the need for thorough psychiatric evaluation appeared in another 5% of records. The diagnostic surveys and various treatments in these cases had cost the insurance plans a total of $5,400. Yet, treatment at the start of the causative emotional factors would not have increased and may even have decreased the insurance costs, and either eliminated or reduced future consultations.

It is therefore our strong belief that hospitalization and medical care benefit plans should work out feasible policies for the care of all acute psychiatric disorders treated by qualified psychiatrists in approved departments of general hospitals and in other approved institutions. If such policies prove impractical because of cost, then all psychiatric disorders without exceptions should be excluded. The present system does nothing but add to confusion of both patient and physician. It also leads to much subterfuge and evasion, when the physician sees the injustice of certain exclusions and tries to alleviate the severe burden of costs in caring for clear cases of psychiatric disorder.

In our opinion, however, the final costs of including psychiatric disabilities would be offset by the economies of treating the patient etiologically instead of symptomatically under erroneous or partial diagnoses. We believe that 25% of all general hospital admissions are patients suffering from psychosomatic, serious psychoneurotic, or psychotic conditions, which are treated under various other diagnoses. We have elsewhere [3] noted that the method of making diagnoses by exclusion of diseases, through a complicated series of laboratory tests and examinations, is a long and extremely costly process. Often we have heard a physician condemn the patient for being a troublesome neurotic, and in the same breath order more exhaustive x-ray studies. The unwillingness

2. Bennett, A. E.: Psychosomatic Syndromes: Errors in Diagnosis and Treatment, Texas State J. Med. **45**: 676-682 (Oct.) 1949.

3. Bennett, A. E., and Engle, B.: Faulty Management of Psychiatric Syndromes Simulating Organic Disease, J. A. M. A. **130**: 1203-1208 (April 27) 1946.

4. Bennett, A. E.; Hargrove, E. A., and Engle, B.: Psychiatric Treatment in General Hospitals, J. A. M. A. **147**: 1019-1023 (Nov. 10) 1951.

or lack of understanding of how to make a positive diagnosis on examination of the body and the "person in the body" through psychiatric interview techniques is responsible for much of the present high cost of medical treatment.

We firmly believe that proper safeguards can protect hospitalization and medical care benefit plans against exploitation or even dishonesty in psychiatric quite as much as in other medical and surgical conditions. For one thing, clear definitions and inclusions of all major illnesses would help to remove the temptation to juggle the terms of a policy or to evade unclear or unfair provisions.

The recent experience of the California Physicians' Service has shown that no policy is proof against actual dishonesty. An editorial in our state official medical journal [5] advises action by county medical societies and subsequent steps by governmental authorities in the few cases in which "outright dishonesty" is proved. Present investigations will eventually uncover "overcharging because of ignorance of procedures or a lack of study of the proper ways to assemble a statement under the C. P. S. program."

Specific recommendations to improve the entire situation described are as follows: 1. All acute medical disease entities should be included for a practical percentage of hospital and medical care costs. Blue Cross and Blue Shield plans should be made uniform in this regard throughout the country. 2. An alternative to the above is the exclusion of all nervous and mental illnesses, without exception, from insurance benefits. 3. Psychiatric advisory committees should be requested from the American Psychiatric Association and from the Group for the Advancement of Psychiatry to guide the insurance plans in the proper and definite inclusion of these conditions. 4. Studies of successful plans now in operation and pilot experiments set up to test various theories and by actuarial experience to determine just costs should aid the health insurance plans in devising new, complete plans. There is need for careful study and research in this most important field of medical costs insurance.

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5. A New Problem for C. P. S., editorial, Calif. Med. **76**: 300 (April) 1952.

Carcinoid Tumors.—The so-called carcinoid or argentaffin tumor, considered by many to be benign, is an adenocarcinoma of a relatively low grade of malignancy, as attested by the fact that, even though it usually grows slowly, it invades tissues in a manner comparable to that in which an adenocarcinoma of a universally recognized malignant attribute invades, and is even known to metastasize not only to regional lymph nodes but to the liver. Furthermore, the cells of this type of neoplasm that have invaded tissues or metastasized to adjacent lymph nodes or liver are indistinguishable from the cells of the same kind of neoplasm that show no evidence of migration. It is just as unreasonable and unscientific to call the foregoing neoplasm a carcinoid (cancer-like) as it would be to give the same designation to a basal cell carcinoma or a squamous cell carcinoma of a low grade of malignancy at the base of a keratosis. Adenocarcinoma of the so-called carcinoid type usually occurs in the ileum, the cecum and the appendix; however, it may be found in other parts of the intestinal tract.—A. C. Broders Sr., M.D., C. Phillips, M.D., and J. C. Stinson, M.D., Neoplasms of the Large Bowel, *Surgical Clinics of North America*, October, 1952.

CLINICAL NOTES

PERFORATION OF COLOSTOMY LOOP BY SOFT RUBBER CATHETER

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Harry M. Richter Jr., M.D.
and
Theodore Drugas, M.D., Chicago

We recently encountered a case of perforation of the bowel by a soft rubber catheter that occurred in a patient who was employing an enema for colostomy evacuation. None of us has ever seen a similar accident. A careful search of the records of the Michael Reese Hospital for the last 20 years failed to show any case of perforation of the bowel with a soft catheter. Drs. E. I. Greene and J. M. Greene,[1] in a recent article, report a similar case and say that "a review of the literature for the last eighteen years reveals only one report of similar complications." They refer to the article of Dr. Carl Davis Jr.,[2] who reported three cases.

REPORT OF A CASE

A 55-year-old man was brought to Michael Reese Hospital with a perforated bowel. Four months previously, he had had an abdominoperineal bowel resection for cancer of the rectum. The artificial anus was formed by means of a single barreled colostomy of the sigmoid. For the last two months, he had been regulating his colostomy evacuation by means of a daily morning tap water enema. The morning he was brought to the hospital he had been proceeding as usual with a soft rubber F14 catheter as the enema tube. He had "some difficulty in inserting the catheter more than two inches, but after pushing it up and down a few times, the catheter slipped in easily without any pain whatsoever, much further than usual." The water started to flow in with no apparent resistance; however, after only a few ounces had gone in, the patient felt a severe, sharp pain in his lower abdomen. He broke out in a sweat and "almost collapsed." A neighboring physician was called, who made the diagnosis of perforated bowel, gave the patient an injection of morphine, and sent him to the hospital. When he arrived, he was in mild shock, complaining of severe lower abdominal pain. The abdomen was board-like.

He was operated on within four hours of the time he inserted the catheter. The abdomen was opened through a midline incision. There was evidence of early peritonitis. The intestines and pelvic peritoneum were reddened, and a perforation was found in the colon three inches from the colostomy. The colon at this area, except for the acute inflammatory reaction of the serosa, seemed normal. The edges of the perforation were clean. There was no gangrene or any other sign of a pathological condition, except for the obviously early reaction to the injected fluid and the extruded intestinal contents. There was no sign of a diverticulum or extreme angulation at the point of perforation. The colon was resected to a point about an inch proximal to the perforation, and a new artificial anus was established at the site of the old one. The patient had an uneventful convalescence.

COMMENT

We do not know why the soft catheter perforated what apparently was a healthy bowel. We know from experience at the operating table that the normal nondistended colon is tough and can withstand a good deal of trauma.

From the Surgical Service of Michael Reese Hospital.

1. Greene, E. I., and Greene, J. M.: Traumatic Perforation of the Colon in a Patient with a Colostomy, J. A. M. A. **148**: 49 (Jan. 5) 1952.
2. Davis, C., Jr.: Enema Tube Perforation of the Colon, Ann. Surg. **126**: 337 (Sept.) 1947.

We hypothesize that a wave of peristalsis coincidental with the insertion of the catheter may have held it firmly enough so that it acquired the property of rigidity and could thus puncture the bowel; in the same way, an ordinary common pin can be driven through a metal disk if it is encased in a piece of cork. If the patient had waited a moment or two for peristalsis to subside or if he had injected a small amount of water when he first felt the obstruction to the catheter, we think the perforation never would have occurred.

The use of the morning enema has given our colostomy patients so much comfort and such great assurance of freedom of stool for many hours or often for the rest of the day that we do not plan to stop using the procedure because of this accident. Furthermore, we do not think it is necessary to change the technique of the enema other than to warn these patients that if there is any difficulty in advancing the enema tube they should wait for a few moments and insert a small amount of fluid before again trying to gently push the tube.

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TOTAL AUTOEMASCULATION

REPORT OF THREE CASES

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and
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Trauma to the external genitalia in the male is a relatively rare occurrence in civilian life and is ordinarily associated with accidents involving industrial machinery. During the last war, military surgeons observed a large number of mutilating genital wounds occasioned mainly by the explosion of land mines. There are no definite compilations of these experiences. Self-inflicted wounds may have occurred in army psychiatric institutions, but there are no specific references to them in the literature. Accidental genital traumas usually comprise contusions, lacerations, and denudations of the scrotum and/or shaft of the penis. Standard textbooks in urology contain few comments on this topic and fail to discuss complete autoemasculation. Rolnick, Lowsley and Kirwin, Young, and Dodson, in referring to accidental genital traumas, do not describe complete autoemasculation. Ferris,[1] Delprat,[2] Veseen and O'Neill,[3] Roth and Warren,[4] Vernon and Kelly,[5] Bisset,[6] Williams and co-workers,[7] Judd, and Byars describe various forms of accidental genital injuries without specifically referring to self-inflicted wounds. Total autoemasculation is a phenomenon we have not seen recorded contemporarily. Except for its prevalence in some primitive societies, self-inflicted trauma of the genitalia is confined to psychotic patients. Even in mental institutions, its occurrence is rare, usually involving only a portion of the sex organs. An impulse to effectuate self-castration in psychotic patients, when suspected, requires constant vigilance by the immediate attendants. Patients may be successful in the infliction of such an injury, despite close observation.

Genital mutilations have been and continue to be practiced as religious rituals among aboriginal tribes. Variants of circumcision, meatotomy, external urethrostomy, castration, and the implantation of pigments beneath the penile skin are practiced as tribal rites. Certain religious practices in ancient Greece and Asia Minor culminated in autocastration or total emasculation. The genitals were offered to the gods as a ritualistic sacrifice. An account of these ancient mysteries in the Encyclopedia Britannica states that the Oriental mysteries, associated with Attis, Cybele, Isis, and Sabazanes, which invaded later Greece and early imperial Rome, were akin to the Dionysian and Orphic rites. Their orgiastic ecstasy was more violent and the psychical aberrations to which the votaries were prone through their passionate desire for divine communion were more dangerous. Emasculation was practised by the devotees of Attis. These orgies were perpetuated under the Romans in association with the cult of Bacchus. Bacchanalian revels were ultimately banned by edict, but some of these practises persisted during the Dark Ages.

Beilin and Grueneberg,[8] in 1948, reporting on genital self-mutilations, remark that the motivations and methods of these injuries vary with the basic mental disease and are manifestations of a phenomenon called "autoalgolagnia," embracing components of both sadism and masochism, the infliction of pain serving as a source of sexual excitement.

Our report is presented primarily from a surgical viewpoint. We have not attempted to explore the complex underlying psychopathological motivations. Our cases are remarkable in the extensiveness and severity of the injuries encountered. In addition, they appear to be the first cases of complete autoemasculation to be reported. The principles involved in the repair of such wounds is of great interest and importance.

REPORT OF CASES

CASE 1.—J. T., a 38-year-old white man, was brought by police to the emergency ward of the Morrisania City Hospital, in 1950. He had on previous occasions been admitted to other municipal hospitals for acute and chronic alcoholism. These incidents were usually followed by severe depressive states, during which he was at times suicidal; at no time, however, had he been adjudged insane. His family reported that he had always been irritable and high-strung. On the night prior to his admission he had visited his sister's home, where he seemed concerned about his cowardice and expressed a desire to prove his merit. He left in a disturbed condition. On that night, in the kitchen of his home and in the presence of his wife, also an alcoholic, he placed his genitalia on the table and completely amputated them with one stroke of an ordinary bread knife. He grasped the severed parts and, with-

From the Department of Urology, Morrisania City Hospital (Dr. John Duff, Director).

1. Ferris, D. O.: Traumatic Avulsion of Skin of Penis and Scrotum, J. Urol. **62**: 523, 1949.
2. Delprat, G. D.: Traumatic Avulsion of Entire Penis (Both Corpora Cavernosa and Urethra): Industrial Injury, J. A. M. A. **125**: 274 (May 27) 1944.
3. Veseen, L. L., and O'Neill, C. P.: Plastic Operation on Penis: Case Report, J. Urol. **30**: 375, 1933.
4. Roth, R. B., and Warren K. W.: Traumatic Avulsion of Skin of Penis and Scrotum, J. Urol. **52**: 162, 1944.
5. Vernon, H. R., and Kelly, R.: Unusual Surgical Emergency, Brit. M. J. **1**: 925, 1935.
6. Bisset, R. D. N.: Self-Castration, Brit. M. J. **2**: 59, 1949.
7. Williams, A. A.; Walker, M., and Chambers, O. D.: Case Report of Avulsion of Male External Genitalia, J. Urol. **58**: 140, 1947.
8. Beilin, L. M., and Gruenceberg, J.: Genital Self Mutilations by Mental Patients, J. Urol. **59**: 635, 1948.

out assistance, walked to the nearest police station. Shaking the specimen in his hand, he proclaimed his act and his heroism to the precinct captain. He apparently experienced no pain but was bleeding profusely. He submitted quietly to transfer by ambulance to the hospital.

When first seen he was resting comfortably but, on questioning, spoke incoherently about his act, his cowardice, his courage, his loss of sex, and his desire to become a woman. He insisted that he had no pain. The genitalia, still held tightly in his fist, could be removed only by force. There was no evidence of shock, and his temperature, blood cell counts, and blood pressure were within normal limits. There was no active bleeding. Except for a minute residual stump of denuded penis measuring 1.5 cm. in length and a small fringe of scrotum, the amputation had been complete at the plane of the pubis and perineum (fig. 1 and 2).

Repair of the wound was performed, with the patient under general anesthesia. The operative site was cleansed and débrided, and the cord structures were identified. All visible vessels were ligated. There was no active arterial bleeding and only a minimal

Fig. 1.—Ventral view of amputated specimen from patient in case 1.

venous ooze. The scrotal edges were sutured in the midline, and the pubic skin was closed around the small penile stump. The urethra was easily identified. A no. 20 French Foley catheter with a 5 cc. balloon was introduced into the bladder, and clear urine was obtained. With the catheter in place, the residual urethral mucosal edge was everted by several interrupted catgut sutures to Buck's fascia. The denuded penile stump was covered with vaseline gauze. Skin grafts could not be applied because of a sudden rapid drop in blood pressure. The patient received supportive and antibiotic therapy and, after three uneventful days, was transferred to the psychiatric division of the Department of Hospitals. The perineal and urethral wounds healed without infection. The catheter was removed on the seventh day. The patient voided spontaneously and was continent. The final psychiatric diagnosis was schizophrenia.

CASE 2.—J. S., a 22-year-old white man, was brought to the emergency ward by ambulance, in 1950. He had been discharged from a mental hospital three months earlier with the diagnosis of schizophrenia. Since then a psychiatrist had administered shock therapy. He had been severely depressed and had disappeared from his home. At this time he attempted suicide but was apprehended by the police and returned to his parents, who placed him in the home of his grandmother. One day later, he rushed into the bathroom, locked the door, and, using a large razor, slashed his abdomen twice and then totally amputated his genitalia. He was brought to the hospital immediately.

He was in profound shock. The initial examination revealed two large transverse abdominal incisions, penetrating through the peritoneum. Loops of bowel protruded from both wounds. In addition, although he had completely amputated the penis, testes, and scrotum, there was no evidence of active bleeding.

After the institution of proper supportive therapy, the abdomen was explored and, since there was no bowel injury, the wounds were closed. Detailed examination of the perineal area showed that the penis was amputated 2 cm. distal to the penoscrotal junction. The testes were absent and both spermatic cords were retracted. The scrotum was missing. The perineal and scrotal wounds were united with ease after completion of débridement and evacuation of clots. Both cord stumps were ligated. Attempted catheterization disclosed the presence of a urethral stricture, which required dilatation to permit the insertion of a small Foley catheter. As in the previous case, the urethral mucosal edge was everted. Clear urine was obtained from the bladder. There was sufficient residual skin to permit the denuded penile stump to be covered completely.

With supportive measures and chemotherapy, recovery was uneventful. On the second day, the patient was removed by his family, who preferred to continue treatment under private auspices, and a final follow-up was not available. The amputated specimen was comparable to that in case 1.

We received a personal communication from Dr. Jules Magnette, Assistant Clinical Director, Territorial Hospital, Kaneohe, Oahu, Hawaii, describing the following case, with his permission to include it in this report.

CASE 3.—A 25-year-old Japanese college student who was mentally disturbed because of poor scholastic grades amputated his penis and testes with a butcher's knife. Sufficient scrotal skin was left for good approximation. The penile stump was not sutured but healed by granulation, with the aid of an indwelling urethral catheter. Both ears were also badly mutilated. He apparently suffered no pain at the time of admission. The diagnosis was schizophrenia. Except for the resulting anatomic defects, he made a complete recovery and voids well. In this instance the mental aberration improved after shock treatment.

COMMENT

Autoemasculation is a phenomenon seen only in the specific psychoses. It is considered evidence of the persistence of infantile sexual patterns. The majority of such genital injuries are minor and incomplete. The three instances reported here are examples of the ultimate potential of the psychotic patient in this regard.

The details of therapy necessarily vary with the extent of injury. Repair is not difficult, provided sound surgical principles are followed. Simple suture and coaptation of tissues after débridement usually will achieve an adequate result. Even when almost the whole penis is severed, satisfactory urethral anastomosis has been reported. This is facilitated by the use of a catheter as a splint. Referring to urethral interruptions of this character, Young states that immediate anastomosis is essential. Many urologists feel that suprapubic drainage is desirable whenever there is loss of urethral continuity.

Because of the comparative rarity of self-inflicted genital traumas, recourse to experiences derived from the relatively more numerous, though comparable, lesions resulting from industrial and accidental wounds must be used as a guide to therapy. The following experiences are

those of physicians who were primarily concerned with accidental injuries. Williams, Walker, and Chambers [7] mentioned the possibility of restoration and replacement of the amputated penis with implantation of the amputated testes into the inguinal canals. They concluded that this procedure is ill-advised. In their case, uneventful recovery followed use of an indwelling catheter in the small penile stump in a manner comparable to that in which it was used in our patients. Roth and Warren [4] emphasized the desirability of immediate primary repair of the penis, utilizing skin grafting where necessary. Byars described a method in which split thickness grafts are used for restoration when the penile shaft is completely denuded. The grafted segments should be as large as possible to allow for retraction. Robertson [9] used pedicle flaps and Thiersch grafts for repair of the denuded penis. After such grafting is done the new penile skin tends to be soft, flexible, and freely movable over the shaft. Owens [10] and Judd also advised that grafts be applied at once, along with pressure dressings. Brown [11] advocated the use of estrogens for the control of erections. Indwelling catheters, if used, should be removed as soon as possible. Ferris [1] found the use of split thickness grafts, obtained with the Padgett dermatome, the method of choice. He utilized the residual skin but insisted that it must not be overstretched in covering the defect. He emphasized the importance of locating the resulting scar on the dorsum of the penis rather than on the urethral surface, thereby avoiding downward contracture and favoring the normal curvature during erection.

Scrotal repair is best accomplished by conserving and utilizing all viable fragments, especially in cases in which the testes are still attached. In the experience of Roth and Warren,[4] even an insignificant portion of scrotum, if properly cared for, can serve as a seed from which a new scrotum may grow. Primary repair, using residual scrotal tissue plus adjacent undermined skin flaps, favor a superior anatomical restoration and obviate the need for subsequent, time consuming plastic procedures. These authors reinforce the opinion that completely avulsed skin, as well as the amputated penis or testes, are unsuitable for reconstruction and anastomosis. Ferris [1] also stressed the great capacity of scrotal remnants to regenerate. The use of every small residual fragment provides the only means for constructing a flexible and contractile sac. If the potential scrotal sac is too small, the testes may be temporarily transplanted to the thighs and later returned to the scrotum when it assumes a larger size. It is wise, in wounds involving the genitalia, to recollect that the blood supply and collateral circulation are profuse and that scrotal and penile wounds often heal with what appears to be miraculous rapidity.

In cases of testicular injury, every reasonable attempt should be made to save the gonads, but whenever the blood supply is completely interrupted, restoration is no longer feasible. When conservation seems indicated, gonadal implantation within a newly formed scrotum should be employed. In the event of total loss of the scrotum, Ferris [1] advised the use of Thiersch grafts. Preferable methods involve implantation of the testes in the inguinal canals or in lateral thigh pockets. It may be possible to return the testes to a newly constructed scrotum at a later date. When a new scrotum is constructed with the use of pedicles from the inguinal region, the thigh, or the pubic area, it never attains contractility comparable to that that is achieved when parts of actual scrotal tissue are incorporated in the reconstituted sac.

When penile amputation occurs at the plane of the pubic skin, sphincteric function and continence are preserved. Even a small retracted stump permits satisfactory direction of the urinary stream. Patients with minute residual stumps may attain erection and satisfactory intercourse. In cases in which both testes are lost, endocrine replacement therapy is often necessary, although in some instances, androgens elaborated by the adrenals preserve the secondary sexual characteristics.

Fig. 2.—Dorsal view of amputated specimen from patient in case 1.

In our cases of total amputation, the practicability of accomplishing anatomical restoration of parts by suture of the amputated specimen to the residual wound edges was considered. We were aware of reports describing repairs of this type but could find no authentic confirmation of them. We feel, as do many others, that attempts to restore a completely amputated organ, either penis or testis, are not only futile but enhance the hazards of infection

9. Robertson, J. F.: Avulsion and Reconstruction of Scrotum, South. Med. & Surg. **93**: 527, 1931.

10. Owens, N.: Reconstruction for Traumatic Denudation of Penis and Scrotum: Report of Case, Surgery **12**: 88, 1942.

11. Brown, J. B.: Restoration of Entire Skin of Penis, Surg., Gynec. & Obst. **65**: 362, 1937.

and necrosis. In the surgical treatment of psychotic patients eventual reconstruction of the amputated penis becomes an important consideration only when the psychiatric prognosis is excellent. Consequently, it is unwise to follow the basic emergency surgical treatment with early reparative procedures. Normal men who undergo accidental amputation experience a psychological catastrophy of great magnitude. Although they can void and ejaculate, the modus operandi for satisfactory coitus is absent. Ingenious attempts to construct a new penis, utilizing varieties of tubed grafts have been reported. The methods are laborious and not eminently successful. Bergman [12] recently described an interesting technique for penile reconstruction that takes about nine months for completion. As a first step, a tube graft derived from the skin of the abdominal wall is created, in the center of which a segment of rib cartilage is implanted to simulate an os penis. At a later stage, a cystostomy is effected and the tube graft united to the stump of the penis. The remaining urethral defect is repaired in subsequent stages with a tube graft derived from the scrotum. Bergman reports that his patients urinated normally and that their sexual life was satisfactory. Although it is a laborious procedure, it should be a worth-while and rewarding reconstruction in suitable cases, provided continued experience substantiates its feasibility and value.

SUMMARY

The phenomena of autoemasculation and accidental genital trauma are discussed. Three classical examples of self-inflicted total genital amputation are described, and comment is made on the immediate psychiatric implications. Surgical principles involved in the repair of genital trauma are discussed.

745 5th Ave. (22) (Dr. Kenyon).

12. Bergman, R. T.; Howard, A. H., and Barnes, R. W.: Plastic Reconstruction of Penis, J. Urol. 59: 1174, 1948.

Antibiotics and Chemotherapy and the Common Cold.—It is apparent that some favorable effects on acute respiratory disease have been reported from each of the sulfonamides and antibiotics that have been used; it is equally clear, however, that none of these favorable results could be confirmed under carefully controlled conditions by other observers using the same agents. An important feature, however, has been the uniformity with which acute bacterial infections have been influenced by all these agents; the most favorable effects on acute respiratory infections in general, or even in cases that have been considered to be acute nonbacterial respiratory infections, have been in groups, or under conditions in which infections with susceptible bacteria, particularly hemolytic streptococci, have been prevalent during the period of the studies.

It seems reasonable to conclude, therefore, that none of the antimicrobial agents have been unequivocally demonstrated to have a favorable effect in the treatment or prevention of the uncomplicated common cold or the simple, acute nonbacterial respiratory disease. The routine use of these agents for the treatment or prevention of common colds does not therefore seem warranted. On the other hand, they may prove highly useful in cases in which bacterial complications are present or may be anticipated or during periods of high prevalence of infections with hemolytic streptococci or other susceptible bacteria.—Maxwell Finland, M.D., Antibiotic Treatment of Acute Respiratory Infections and Influenza, *New England Journal of Medicine*, October, 1952.

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

Carbacrylamine Resins.—Carbo-Resin (Lilly).—A flavored mixture of 87.5% of the cation exchangers, carbacrylic resin and potassium carbacrylic resin, and 12.5% of the anion exchanger, polyamine-methylene resin. Two-thirds of the cation exchange mixture is carbacrylic resin (a polyacrylic carboxylic acid resin) and the remainder is the potassium salt of the carbacrylic resin.

Actions and Uses.—Carbacrylamine resins is used as an adjunct to increase the fecal excretion of sodium in the treatment of edema caused by abnormal sodium retention by the kidney. It is useful, therefore, in the management of sodium retention accompanying chronic congestive heart failure, cirrhosis of the liver, and the nephrotic syndrome.

The cation exchange resin is of the carboxylic acid type that gives up its hydrogen ions in exchange for cations. Its affinity for various cations differs in accordance with their valence and their order in the atomic table. Therefore, in a solution containing equal milliequivalents or concentrations, it would combine with more calcium and potassium than sodium. However, because the concentration of sodium in the intestinal tract is relatively high, the major exchange capacity of the resin is utilized in the removal of that cation. It is estimated that in a man weighing 60 kg. (132 lb.), approximately 160 gm. of endogenous sodium enter the intestine every day along with the usual exogenous intake of 4 to 6 gm. Some evidence indicates that the cation exchange resin acts chiefly on the exogenous sodium of the diet. Because of the capacity of the cation exchange resin to combine with other essential metallic ions, it has been found necessary to administer one-third of the resin as the potassium salt to prevent serum deficiency of that important cation. Carbacrylamine resins provides two-thirds of the cation exchange resin in the hydrogen form and one-third in the potassium form. The anion exchange resin makes up about one-eighth of the mixture and is added to reduce the tendency to acidosis produced by the cation exchange resin in patients with severe renal impairment caused by the inability of the kidney to manufacture sufficient ammonia. This tendency toward the production of acidosis is not obviated by the use of an ammonium salt in place of the hydrogen form of the carboxylic resin, since the ammonia which would be released is subsequently converted to urea in the liver. The anion exchange resin slightly increases the capacity of the cation exchange resin at the pH of the intestinal contents. Some investigators have observed that the cation exchange resin enhances the diuresis produced by mercurial diuretics. The use of the cation exchange resin is not intended to supplant the use of mercurial diuretics or dietary control of sodium intake. In edematous patients, who already exhibit a minimal urinary excretion of sodium prior to administration of the resin, there is little chance of producing a further reduction through the fecal diversion of dietary sodium.

Carbacrylamine resins must be employed with care to prevent the development of a low sodium syndrome, particularly in patients with an abnormal distribution of that electrolyte in the tissues. Precautions to guard against the development of acidosis are also essential. Periodic determinations of the carbon dioxide combining power and serum chlorides should be made when negative sodium balance has been present for some time after edema has disappeared. Patients should also be observed regularly for signs of mineral deficiency in other cations, such as calcium. Since hyperpotassemia can occur when urinary excretion is severely limited, the mixture should be used only in patients with adequate kidney function. Use of the potassium salt form as provided by the mixture is contraindicated for patients

with anuria. Salt "substitutes" containing potassium should be used sparingly, if at all, because an increase in potassium intake may reduce the efficiency of the cation exchange resin. The mixture should not be employed without adequate laboratory facilities to follow the serum electrolyte pattern. Whenever food consumption is temporarily interrupted or sodium intake reduced, the dosage of the mixture must be adjusted accordingly. Large doses may produce gastrointestinal discomfort, anorexia, nausea, and vomiting; but care is needed to differentiate such symptoms from those caused by sodium depletion. The possibility of fecal impaction in elderly patients should be kept in mind.

Dosage.—Carbacrylamine resins is administered orally as a flavored powder which can be dispersed in water. Each gram will remove approximately 1 mEq. (23 mg.) of sodium from the intestinal tract when the patient is on a diet containing at least 1.5 gm. of sodium (3.7 gm. of sodium chloride) per day. The number of metallic ions bound to the carboxylic resin decreases as the intake of salt is reduced. On a low sodium diet (0.5 gm. or less), usually no more than 0.3 mEq. (7 mg.) of sodium is removed by each gram of the mixture. The total daily amount must be adjusted to meet the individual requirements of each patient. For patients with abnormal retention of sodium, who require restriction of sodium intake to 1.5 gm. or less per day plus regular therapy with a mercurial diuretic, 48 gm. of the drug usually will maintain an edema-free state when intake of sodium is increased to 3 gm. (7.5 gm. of sodium chloride) per day.

The usual initial dose is 16 gm. (two level tablespoonfuls) suspended in 6 oz. (180 cc.) of tap water or fruit juice, three times daily, to be taken between meals. The mouth is rinsed free of the particles after each dose. Milk should be avoided because of its high electrolyte content. The suspension should be taken immediately after thorough stirring, but additional water or juice may be taken after each dose. No more than 24 gm. is advisable for a single dose. When it is necessary to prescribe more than 72 gm. per day, the number of doses rather than the size of the individual dose should be increased. The maintenance dosage is adjusted on the basis of constant "dry" body weight when either the dietary intake of sodium can be increased or the total dose of the resin mixture reduced until body weight rises. The dosage required to maintain a balance between intake and output of sodium should be reduced by simultaneous moderate restriction of dietary sodium or by administration of a mercurial diuretic. In some persons severely restricted previously, the moderate increase of salt permitted with the administration of the resin mixture has been followed by increase in appetite and nutrition. When edema fails to disappear during resin therapy, attention must be given to other factors which may participate in its etiology, such as hypoproteinemia.

Tests and Standards.—

Physical Properties: Carbacrylamine resins is a light buff, free-flowing powder without appreciable odor. It is practically insoluble in dilute acids and alkalis, alcohol, ether, and water. All of the powder passes a 100 mesh screen and 75% passes a 200 mesh screen.

Purity Tests: Carbacrylamine resins responds to the purity tests described in the monographs for carbacrylic resin and potassium carbacrylic resin.

Assay: (Exchange Capacity) Transfer to a 500 ml. glass-stoppered Erlenmeyer flask about 2 gm. of carbacrylamine resins, accurately weighed. Add exactly 250 ml. of 0.1 *N* sodium hydroxide and stopper the flask tightly. Mechanically agitate the flask for four hours. Centrifuge the suspension at 3,000 rpm. for 30 minutes. Transfer a 50 ml. aliquot of the clear supernatant liquid to a 200 ml. beaker and titrate to pH 7.0 with 0.1 *N* hydrochloric acid. Each gram of resin consumes not less than 60.0 nor more than 70.0 ml. of 0.1 *N* sodium hydroxide.

(Nitrogen and Polyamine-Methylene Resin) Accurately weigh about 1.5 gm. of carbacrylamine resins, previously dried, and transfer to a semi-micro Kjeldahl flask. Add 7 ml. of sulfuric acid and 3 gm. of a mixture of 2.7 gm. of potassium sulfate and 0.3 gm. of mercuric oxide. Digest for four hours. Cool the flask, add 15 ml. of water, and again cool. Connect the flask to an ammonia-distillation apparatus, and add 30 ml. of 40% sodium hydroxide and 10 ml. of 40% sodium thiosulfate. Distil the ammonia into 20 ml. of 4% boric acid. Using a mixed indicator (1:5 methyl red T.S. and bromocresol green T.S.), titrate the solution with 0.1 *N* sulfuric acid. Each milliliter of 0.1 *N* acid is equivalent to 0.001401 gm. of nitrogen and 0.008588 gm. of polyamine-methylene resin. The amount of polyamine-methylene resin is not less than 10.5 nor more than 13.0%.

(Potassium and Potassium Carbacrylic Resin) Accurately weigh about 0.5 gm. of carbacrylamine resins, previously dried, and transfer to a platinum crucible. Add 4 ml. of sulfuric acid and heat cautiously over a low flame until no more fumes evolve. Raise the temperature of the flame gradually and finally ignite at maximum burner temperature. If the ash is discolored, repeat the heating after the addition of 2 ml. of sulfuric acid. Each gram of the sulfated ash is equivalent to 1.951 gm. of potassium carbacrylic resin. The amount of potassium carbacrylic resin present is not less than 26.0 nor more than 32.0%.

(Carbacrylic Resin) The amount of carbacrylic resin is obtained by difference.

Dosage Forms of Carbacrylamine Resins

POWDER. The powdered resin responds to the tests and standards for the active ingredient described in the monograph for carbacrylamine resins.

CARBACRYLIC RESIN.—A polyacrylic carboxylic acid resin.

Tests and Standards.—

Physical Properties: Carbacrylic resin is a free-flowing, buff powder, 99% of which passes a 100 mesh screen and 75% of which passes a 200 mesh screen.

Purity Tests: Transfer 2 gm. of the resin, accurately weighed, to a platinum crucible. Add 5 ml. of sulfuric acid. Heat gently over a small Bunsen flame until fumes no longer evolve. Transfer the crucible and its contents to a muffle furnace and completely ignite at 800°. Cool, add 5 ml. of 10% hydrochloric acid and 1 ml. of 6% acetic acid. Heat carefully to dissolve the residue. Add 10 ml. of water and filter the mixture into a 50 ml. volumetric flask, rinsing the filter with water until the filtrate totals about 30 ml. Add one drop of phenolphthalein T.S. and make the solution just alkaline with 10% ammonium hydroxide. Make the solution just acid with 6% acetic acid and then add exactly 4 ml. of 6% acetic acid in excess. Dilute to 50 ml. with water and mix. Transfer 25 ml. of this solution to a 50 ml. Nessler tube and run a *U. S. P. heavy metals test:* the amount of heavy metals is not more than 10 ppm.

Mix thoroughly in a porcelain crucible about 0.5 gm. of resin, accurately weighed, with 1 gm. of potassium nitrate and 1 gm. of sodium carbonate. Heat the bottom of the crucible with the tip of a Bunsen flame and continue the combustion until oxidation is complete. Allow the mass to cool and add 30 ml. of 10% sulfuric acid. Carefully heat the mixture (avoid spattering) until fumes of sulfur trioxide evolve. Using the contents of the crucible as the sample, run a *U. S. P. test for arsenic:* the amount of arsenic is not more than 4 ppm.

Dry about 1 gm. of carbacrylic resin at 125° for 2 hours: the loss in weight does not exceed 5.0%.

Assay: (Exchange Capacity) Transfer to a 500 ml. glass-stoppered Erlenmeyer flask about 2 gm. of carbacrylic resin, accurately weighed. Add exactly 250 ml. of 0.1 *N* sodium hydroxide and stopper the flask tightly. Mechanically agitate the flask for four hours. Centrifuge the suspension at 3,000 rpm. for 30 minutes. Transfer to a 200 ml. beaker a 50 ml. aliquot of the clear supernatant liquid and titrate to pH 7.0 with 0.1 *N* hydrochloric acid. Each gram of resin consumes not less than 100.0 nor more than 110.0 ml. of 0.1 *N* sodium hydroxide.

POTASSIUM CARBACRYLIC RESIN.—The potassium salt of a polyacrylic carboxylic acid resin.

Tests and Standards.—

Physical Properties: Potassium carbacrylic resin is a free-flowing, buff powder, 99% of which passes a 100 mesh screen and 75% of which passes a 200 mesh screen.

Purity Tests: Transfer 2 gm. of the resin, accurately weighed, to a platinum crucible. Add 5 ml. of sulfuric acid. Heat gently over a small Bunsen flame until fumes no longer evolve. Transfer the crucible and its contents to a muffle furnace and completely ignite at 800°. Cool, add 5 ml. of 10% hydrochloric acid and 1 ml. of 6% acetic acid. Heat carefully to dissolve the residue. Add 10 ml. of water and filter the mixture into a 50 ml. volumetric flask, rinsing the filter with water until the filtrate totals about 30 ml. Add 1 drop of phenolphthalein T.S. and make the solution just alkaline with 10% ammonium hydroxide. Make the solution just acid with 6% acetic acid and then add exactly 4 ml. of 6% acetic acid in excess. Dilute to the mark with water and mix. Transfer 25 ml. of this solution to a 50 ml. Nessler tube and run a *U. S. P. heavy metals test:* the amount of heavy metals is not more than 10 ppm.

Mix thoroughly in a porcelain crucible about 0.5 gm. of resin, accurately weighed, with 1 gm. of potassium nitrate and 1 gm. of sodium carbonate. Heat the bottom of the crucible with the tip of a Bunsen flame and continue the combustion until oxidation is complete. Allow the mass to cool and add 30 ml. of 10% sulfuric acid. Carefully heat the mixture (avoid spattering) until fumes of sulfur trioxide evolve. Using the contents of the crucible as the sample, run a *U. S. P. test for arsenic:* the amount of arsenic is not more than 4 ppm.

Dry about 1 gm. of potassium carbacrylic resin at 125° for 2 hours: the loss in weight does not exceed 5.0%.

Assay: (Exchange Capacity) Transfer to a 500 ml. glass-stoppered Erlenmeyer flask about 2 gm. of potassium carbacrylic resin, accurately weighed. Add exactly 250 ml. of 0.1 *N* hydrochloric acid and stopper the flask tightly. Mechanically agitate the flask for four hours. Centrifuge the suspension at 3,000 rpm. for 30 minutes. Transfer a 50 ml. aliquot of the clear supernatant liquid to a 200 ml. beaker and titrate to pH 7.0 with 0.1 *N* sodium hydroxide. Each gram of the resin consumes not less than 45.0 nor more than 55.0 ml. of 0.1 *N* hydrochloric acid.

(Potassium) Transfer to a tared platinum crucible about 1 gm. of the resin, accurately weighed. Add 4 ml. of sulfuric acid and heat the crucible and contents cautiously with a low flame until all fumes are expelled. Ignite the contents at 800° in a muffle furnace. Cool the crucible in a desiccator and weigh. Each gram of residue is equivalent to 0.4487 gm. of potassium. The amount of potassium present is not less than 21.5 nor more than 23.8%.

Eli Lilly & Company, Indianapolis.

Powder Carbo-Resin (Flavored): 450 gm. bottles. A flavored mixture containing about 0.583 gm. of carbacrylic resin, 0.292 gm. of potassium carbacrylic resin and 0.125 gm. of polyamine-methylene resin in each gram of powder.

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THREE CHALLENGES OF THE FUTURE

It is a common failing to become so preoccupied with the present that the perspective for the future is lost. Thus it is wise to occasionally consider some of the social and economic trends that are occurring, because they can affect the future of medicine. In some way they will affect the life of every physician. In scanning the horizon one can see immediately three important challenges of the future. They are the changing meaning of socialism, the effect of aging on the voting population, and the need for voluntary health insurance to serve an aging population. These problems are interrelated and are of much concern to physicians as citizens and as practitioners.

Years ago the most commonly accepted definition of socialism meant government ownership of major industries. The socialist argued that healthy competition was inefficient and that government ownership would provide less waste, greater production, and a more equitable distribution of the products of industry. Some of the earlier advocates identified socialism with the Christian ethic. Conservatives wanted to know if government ownership would mean that the factory would belong to the worker or that the worker would belong to the factory; they also charged that those who were too lazy to work could live as parasites from the efforts of the more diligent and conscientious under a scheme of government ownership. Today, however, the term is being applied with a different conception, particularly by the advocates of more governmental domination of our daily activities. The planners for a socialist state are taking a different approach. The emphasis is not placed on governmental ownership but on governmental control. Socialists have discovered that a planned economy is possible in a country that maintains private ownership. In effect, they say, "Why not let the tired old businessman continue to worry about meeting the payrolls, interest on debts, and other expenses? Government, already over-extended, will not be bothered with these details. It will control the overall operation of the economy through governmental regulation and edict and will tax heavily the income of business and individuals for the purpose of providing a certain minimum standard of living for all."

This new type of "minimum standards for all" socialism is difficult to resist, because its announced objective is in keeping with the charitable instincts of all men of good will. Physicians, as a group, have always given their time freely to the medically indigent and have done so voluntarily, recognizing one man's responsibility to his fellow man in need. The difference between private philanthropy and socialist philanthropy is not, then, in the desire to aid the poor, the sick, the disabled, or the aged; it is in the basic attitude toward individuals and in the means used to provide assistance.

Present-day socialists hold that everyone is entitled by nature, without any effort on his part, to a certain minimum amount of food, clothing, housing, medical care, recreation, and even culture. They subscribe to the doctrine of individual irresponsibility—which they prefer to call the doctrine of social responsibility. They would provide the minimum necessities of life to every man through a planned welfare state. Genuine conservatives, on the other hand, believe that men have enough intelligence, character, and ambition to direct their own lives and build their own future security. They believe that men are happier, more mature, and more productive when operating in a free society, even with its risks and pitfalls. They believe also that a spirit of competition sharpens rather than dulls the natural desire of most men and women to make progress. Under this philosophy, private or governmental philanthropy steps in only when, for some reason, a person cannot provide the necessities for himself. On the other side are those who believe more in regulation than in free competition. However sincere the new crop of socialists may be in wanting to cushion the bumps of life, the system they envisage, by its very nature, brings with it confiscatory taxes and oppressive controls. It can sap vitality and destroy freedom just as completely as the old brand of socialism.

This new trend is difficult to oppose because of its superficial appeal. Some believe the "minimum standards for all" type of socialism should be established and are sure it can be contained at minimum levels. Others believe it is the beginning of the road to complete state socialism, including government ownership. It certainly deserves the most careful analysis and thought especially by physicians, because medical care is a nucleus for a general appeal by the socialist planners. The medical profession believes, however, that the need for free medical care should be demonstrated in every case and rightfully objects to the introduction of a controlling third party between the physician and the patient. Nevertheless, this new brand of socialism can creep up on physicians because of its apparent dedication to the care of the sick. It also goes unrecognized by many otherwise informed per-

sons and groups in our population who are blinded because they are thinking only of the old definition of socialism.

The second challenge of the future is largely a product of dying old instead of dying young, a challenge that has been created mostly by medical progress aided by better food, better housing, and better sanitation. In 1900 about 24% of the eligible voters were 50 or more years of age; in the recent November elections more than 35% of the eligible voters were in this older age class. In England more than 40% of the potential voters have lived at least half a century. The current percentages are quite high in the voting populations of other nations of western Europe. In 1900 there was little reason for cradle-to-the-grave schemes such as those that are now creeping over western civilization. There simply were not enough older persons in the electorate in 1900 who would have responded to such an appeal for the older voter to exploit the younger voter.

Demographers guarantee that the percentage of older voters will increase for at least another decade even in the absence of phenomenal new remedies for the diseases of the old. Leaving out of consideration the implications of atomic warfare, there seems to be no reason to expect that the percentage of older voters will not keep on increasing unless the phenomenal birth rate of the post World War II period should unexpectedly continue for many years to come and the fight against the geriatric diseases is suddenly terminated. None of these children will be old enough to vote even a decade hence. We seem to be moving away from a class-conscious society based on Marxian ideology and toward an age-conscious society in which the older voter may be expected to use his increasing voting power to extract what he can from the younger voters. The exploitation of the young by the old also may take place in and out of government, that is, the older worker may exploit the younger worker, the older farmer may exploit the younger farmer, the older businessman may exploit the younger businessman, the older professional man may exploit the younger professional man. Since prophecy is still an exclusively divine gift, one should not even attempt to circumscribe the inventiveness of the future, particularly in the techniques of exploitation. But the weight of these older voters will be felt more and more in future elections and probably in the direction of the new brand of socialism rather than the old brand. Their weight will certainly be felt in pension legislation. We can confidently expect all proposed successive amendments to the Social Security Act to provide for larger pensions for which the recipient will have contributed a smaller percentage of the cost. In particular, the weight of the older voters, both those who are approaching the age of retirement and those who are already retired, may stimulate an almost overwhelming desire for "free" medical care during their retired nonearning years of life.

The challenge of this trend is twofold. There is a need to develop a sense of social morality and individual responsibility, especially in those of us who are over 50 years of age, so that we will voluntarily refrain from exploiting the younger generation. This will be possible, however, only if there are practical alternatives to dependence on government in later years. Plans for saving during the working years of life, including pension plans and annuity contracts, should be reexamined. The bargain or charity features of the benefits under Old Age and Survivors Insurance of the Social Security Act should be carefully scrutinized in the light of our aging population. The common policy of automatic retirement at age 65 must be reviewed. Increasing numbers of persons are able and desirous of working beyond this age limit.

This brings us to the third challenge of the future. Although the members of the medical profession join with other citizens in saluting the voluntary health insurance movement for a truly phenomenal rate of growth, the challenge of an aging population to voluntary health insurance must somehow be met. A cynic might suggest that the challenge could be met by turning back the wheels of progress and letting more persons die young instead of dying old; however, young voters hope to become older voters, for few normal persons will ever welcome the onset of their last illness or the occurrence of a fatal accident. The quest for longer life will go on and on, and the physician will lead that quest unmindful of the challenge to free medicine that at the same time is being created by the aging of the electorate.

The challenge must be met by a continuous reexamination of the problem. The voluntary health insurance movement must be adapted to meet the challenge. In addition to expanding its coverage and increasing the maximum benefits—even at the cost of not paying the so-called "five and dime" claims—ways and means must be found to encourage prudent citizens to prepay for their medical care during their retired years by premiums paid during their working years. This might mean charging an extra "pure premium," which would be set aside solely for medical and hospital benefits during the retired years of life. Prepayment of a medical care annuity for the retired years could be accomplished by life insurance or savings in other forms. Most citizens would probably be willing to forego the luxury of plans paying "five and dime" claims in favor of plans offering medical security later on. Some citizens will prefer to create sufficient savings through life insurance and other means to enable them to continue paying premiums on regular health insurance during retired years. Their choice of method to provide for medical care during retirement is an individual privilege, but they must be encouraged to choose some method voluntarily if they are to avoid being told what to do by their government.

If effective modifications in voluntary health insurance can be made and our standards of social morality raised in time, it may still be possible for us to meet these three challenges of the future. We can avoid being engulfed by the new brand of socialism, can continue the trend toward dying old instead of dying young, and, at the same time, adapt voluntary health insurance to the needs of an aging electorate.

THE STATUS OF DOCTOR-DRAFT LEGISLATION

There is probably no subject of more current interest to the medical profession than the "doctor-draft law" and the possibility of its extension beyond its expiration date of July 1, 1953. Recognizing this interest, the American Medical Association has followed closely recent developments and has maintained constantly liaison with the armed forces and the Department of Defense. Much of the time of the delegates at the Denver Clinical Session of the Association was spent in reviewing this legislation and its administration and in studying the necessity and advisability of extending the law.

The fall meeting of the Council on National Emergency Medical Service, held Nov. 8-9, 1952, was dedicated entirely to this subject. Included in the attendance of about 60 persons were the surgeons general of the Army, Navy, Air Force, and United States Public Health Service, the chairman of the Armed Forces Medical Policy Council, the chairman of the National Advisory Committee to the Selective Service System, and the medical directors of the Selective Service System and the Veterans Administration, as well as representatives of all major national health associations. Elsewhere in this issue (page 231) is a report of the Council on National Emergency Medical Service that reflects part of the interest shown at the meeting.

As a result of past experience, and in the light of information that was presented at its meeting, the Council recommended that the Association withhold any action on the proposed extension of the law until more specific data and satisfactory answers were available to show:

(*a*) Any revision in military medical requirements resulting from changes in the international situation, new administration policies or budget curtailments for the Department of Defense.

(*b*) The possibility of increasing the effectiveness of military medical procurement and utilization.

(c) The percentage of time spent by physicians in uniform in the treatment of other than military personnel, such as the dependents of servicemen.

The recommendations of the Council were approved by the Board of Trustees and referred to the House of Delegates. In approving the recommendations of the Council, the Board stated that it was unable, on the basis of available data, to determine the weight that should be given to the question of dependent medical care in deciding whether compulsory draft legislation should be extended. The Board therefore requested the Department of Defense to conduct a pilot study to determine the amount of time spent by physicians in uniform in the treatment of other than military personnel. In addition, a statement of intent concerning the future dependent medical care program of the Department of Defense was requested. The Board of Trustees also recommended that a committee composed of civilians be appointed to investigate ways of increasing the attractiveness of service in the military and naval medical corps and to develop an effective program for medical officers and allied health personnel procurement.

Individual resolutions concerning the "doctor-draft law" were introduced in the House of Delegates in addition to the report of the Board of Trustees (see abstracts of Proceedings of House of Delegates, page 1676, Dec. 27 issue of THE JOURNAL). After a full day of hearings, the Reference Committee on Medical Military Affairs recommended that the Association support legislation "designed to provide the number of medical officers required to care adequately for the health needs of the uniformed Armed Forces."

The Board of Trustees and the Council on National Emergency Medical Service were also authorized and directed to urge:

(*a*) A revision of physical requirements for medical officers, permitting physicians with physical defects to be placed on military duty with appropriate assignments.

(*b*) The development of better recruitment methods by the armed forces for regular medical corps personnel.

(*c*) Greater use of civilian doctors and hospital facilities for the care of military and nonmilitary personnel and the dependents of servicemen.

(*d*) More economical and efficient use of physicians in all governmental agencies.

(*e*) The establishment of an equitable point system for the call-up of physicians.

The Reference Committee also approved a resolution suggesting that the induction of priority 3 physicians under Public Law 779 be deferred until the Selective Service System and the Department of Defense have completed the processing of all physicians in priorities 1 and 2 and have called to active military service all such physicians except those very few persons whose further deferment is essential to the nation's health, safety, and interest.

The report of the Reference Committee was adopted by the House of Delegates without debate. Certain facts were developed during the discussions before the Reference Committee that throw some light on the priority classifications that probably will be suggested by the Department of Defense in the proposed new draft bill. The new measure may seek to abolish the present four priorities and suggest instead the division of all registrants into two groups:

(*a*) All persons who have not served on active duty. This group would be called on the basis of age, youngest first.

(*b*) Persons who have served. This group would be called on the basis of prior service, those with the least amount of service being called first. The bill would also provide that special registrants now classified in priorities 1 or 2 would be inducted when they become available for duty. Persons who have served on active duty for 12 months or more subsequent to June 25, 1950, would not be liable for further military service.

The latest information concerning new legislation reveals that the Armed Forces Medical Policy Council has prepared a bill that is now being reviewed within the Department of Defense. It is anticipated that the health associations will be called in to discuss the measure in the middle of February.

It is hoped that the information essential to the formulation of a sound position on an extension of the draft law will be available before the bill is presented to the Congress. In any event, representatives of the American Medical Association will keep in close touch with new developments and will consult with the Department of Defense and the committees of Congress in an attempt to protect the interests of all segments of the medical profession and to insure a just and equitable solution to this extremely serious problem.

ACUTE DIFFUSE INTERSTITIAL FIBROSIS OF THE LUNGS

In 1944 Hamman and Rich [1] reported four unusual cases of acute pulmonary disease. These were characterized by an extreme degree of dyspnea and cyanosis, which in the course of a few weeks led to dilatation and hypertrophy of the right ventricle of the heart and to grave myocardial insufficiency and death from acute pulmonary suffocation or heart failure. The acute episode was preceded by an illness of variable duration with no symptoms suggestive of a beginning bronchopneumonia. The patients were not incapacitated, there was little fever, and there was mild or no leukocytosis. The acute phase was ushered in by abrupt onset of cough, hemoptysis, dyspnea, cyanosis, and fever.

The autopsy findings in these cases revealed the following peculiarities: (1) a type of inflammation that differed from that of ordinary pneumonia produced by pyogenic bacteria; (2) enlargement of the lining of alveolar epithelial cells; (3) necrosis of alveolar and bronchiolar epithelium; (4) formation of a hyaline membrane that lined the alveoli; (5) marked edema and fibrin deposit in the alveolar walls; (6) extensive diffuse and progressive interstitial proliferation of fibrous tissue throughout all lobes of both lungs associated with focal organization of intra-alveolar hemorrhage; and (7) absence of stainable bacteria in the lesions.

The authors stress that the essential and remarkable feature of this condition is the extensive proliferation of connective tissue within the alveolar walls, even in the absence of an organizing exudate in the alveolar spaces. The condition differed strikingly from an ordinary pneumonia, in which the alveoli become plugged with a new growth of connective tissue, while the alveolar cells undergo little organization.

Histological studies in a case reported somewhat later by Beams and Harmos [2] revealed widespread interstitial fibrosis involving all of the lobes of both lungs. Clinically the case differed somewhat from those reported by Hamman and Rich in that the duration of the disease was 15 months instead of 4 to 24 weeks. In the course of the illness, cor pulmonale, clubbed fingers, and polycythemia developed. Eder and his co-workers [3] reported a similar case of diffuse interstitial proliferation of fibrous tissue throughout both lungs. The progressive character of the disease was evidenced by the different stages in the fibrosis of various portions in the lungs. Golden and Tullis [4] described two similar cases and expressed the view that interstitial fibrosis of this type may be on the basis of failure of resolution and subsequent organization following one or more attacks of acute interstitial pneumonitis, so-called primary atypical pneumonia. The case reported by Peabody and co-workers,[5] in which the patient died, is remarkable because a twin sister of the patient presented a clinically indistinguishable condition.

Spain [6] concluded in his analysis of the different patterns of pulmonary fibrosis that diffuse interstitial fibrosis produces a distinct clinicopathological syndrome. Rubin and co-workers [7] in 1952 reviewed 13 cases appearing in the literature and added one of their own. They believe that the disease is caused by a virus and that the particular pathological features represent a type of a tissue response. They suspect that recovery may take place, but this cannot be proved, since the diagnosis depends on a complete autopsy. Callahan and co-workers [8] emphasized in a recent communication the absence of evidence that can incriminate a bacterial agent as a possible causative factor during the prodromal stages of the disease. The pathogenesis of the condition appears not to be on the basis of a previous or concomitant bacterial infection. The complete lack of cellular infiltration as seen in all of the cases and in their own, they feel, implies that the basic lesion of interstitial fibrosis is not bacterial and if inflammatory must be the result of virus infection or chemical irritation. The causation of this disease remains obscure and will require further studies for its elucidation.

MEDICAL DEBT

Radio and television commercials for loan companies stress the opportunity of the listener to obtain a loan quickly and easily to meet a sudden emergency, which is usually a medical or hospital bill. Although medical bills may be the reason frequently given by applicants for loans from the sponsor, it is not true that medical debts constitute an undue proportion of all consumer debt. Consumers are indebted to a variety of lending agencies. Elsewhere in this issue (page 243) the Bureau of Medical Economic Research has summarized data recently published in the Federal Reserve Bulletin and in the press. The conclusion is that medical debt is currently running about 4 to 5% of total consumer debt. Personal consumer expenditures for medical care are also about 4% of total personal consumer expenditures for all commodities and services. The Bureau contrasts its conclusion with the erroneous interpretation of the same data made by a well-known periodical for the laity. The weakness of the report in this periodical is clearly revealed by the Bureau statement and is an example of the problems facing those who are responsible for medical care.

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2. Beams, A. J., and Harmos, O.: Diffuse Progressive Interstitial Fibrosis of the Lungs, Am. J. Med. **7**: 425-430 (Sept.) 1949.

3. Eder, H.; Hawn, C. V., and Thorn, G. W.: Report of a Case of Acute Interstitial Fibrosis of the Lungs, Bull. Johns Hopkins Hosp. **76**: 163-171 (April) 1945.

4. Golden, A., and Tullis, I. F., Jr.: Diffuse Interstitial Fibrosis of the Lungs, Mil. Surgeon **105**: 130-137 (Aug.) 1949.

5. Peabody, J. W.; Peabody, J. W., Jr.; Hayes, E. W., and Hayes, E. W., Jr.: Idiopathic Pulmonary Fibrosis: Its Occurrence in Identical Twin Sisters, Dis. Chest **18**: 330-344 (Oct.) 1950.

6. Spain, D. M.: Patterns of Pulmonary Fibrosis as Related to Pulmonary Function, Ann. Int. Med. **33**: 1150-1163 (Nov.) 1950.

7. Rubin, E. H.; Kahn, B. S., and Pecker, D.: Diffuse Interstitial Fibrosis of the Lungs, Ann. Int. Med. **36**: 827-844 (March) 1952.

8. Callahan, W. P., Jr.; Sutherland, J. C.; Fulton, J. K., and Kline, J. R.: Acute Diffuse Interstitial Fibrosis of the Lungs, Arch. Int. Med. **90**: 468-482 (Oct.) 1952.

ORGANIZATION SECTION

ABSTRACT OF MINUTES OF MEETINGS OF BOARD OF TRUSTEES

During the time of the Clinical Session of the Association in Denver in December, 1952, several meetings of the Board of Trustees were held, at which the following actions were taken:

GUEST EDITORIALS

Approval was given to the publication in THE JOURNAL of guest editorials to be signed by the author. The editorials will be confined to scientific subjects. The first such editorial appeared in THE JOURNAL for Jan. 3, 1953.

APPOINTMENTS

The following appointments were made of members of the editorial boards of the special journals (unless otherwise stated the appointee is to succeed himself), of representatives to attend functions, etc.:

Dr. T. P. Murdock, to Advisory Committee on Studies of Nursing Functions of the American Nurses Association.

Dr. Julian P. Price and Dr. Rolland Whitacre for a term of three years on the Joint Commission on Accreditation of Hospitals.

Dr. George F. Lull, as Director of the Inter-American Foundation for Postgraduate Medical Education.

Dr. Llewellyn Sale Sr., as Chairman of the Local Committee on Arrangements for the Clinical Session of the Association to be held in St. Louis in 1953.

Dr. F. J. L. Blasingame and Dr. E. B. Howard, to meeting of the National Association of Manufacturers, Jan. 10-11, 1953.

Dr. U. R. Bryner, to the inauguration of J. Richard Palmer as the seventh president of Westminster College, Salt Lake City, Utah.

A. M. A. American Journal of Diseases of Children, Drs. F. Scott Smyth, R. L. J. Kennedy, and Lawson Wilkins (additional member); *A. M. A. Archives of Dermatology and Syphilology,* Drs. Nelson Paul Anderson and Herbert Rattner; *A. M. A. Archives of Industrial Hygiene and Occupational Medicine,* H. H. Schrenk, Ph.D., to succeed Mr. Theodore Hatch, Dr. Charles F. Shook Sr. to succeed Dr. W. A. Sawyer, and Dr. Ralph C. Leggo to succeed Dr. Fenn Poole (deceased); *A. M. A. Archives of Internal Medicine,* Drs. Paul S. Rhoads and Louis Leiter; *A. M. A. Archives of Neurology and Psychiatry,* Drs. B. J. Alpers, Percival Bailey, and Roy R. Grinker; *A. M. A. Archives of Ophthalmology,* Drs. William Zentmayer, Kenneth C. Swan, and David G. Cogan; associate members of the Editorial Board of the *A. M. A. Archives of Ophthalmology* (to succeed the present associate members as of July 1, 1953), Drs. Maynard C. Wheeler, A. Gerard DeVoe, Ludwig von Sallman, Frank Payne, Joseph S. Haas, Alson E. Braley, Trygve Gundersen, F. Phinizy Calhoun Jr., John M. McLean, and Henry P. Wagener (two additional members will be appointed at a later date); *A. M. A. Archives of Otolaryngology,* Drs. George M. Coates and J. Mackenzie Brown; *A. M. A. Archives of Pathology,* Dr. Stuart Lippincott to succeed Dr. Frank R. Menne; *A. M. A. Archives of Surgery,* Drs. L. R. Dragstedt and Alton Ochsner.

Council on National Emergency Medical Service, Dr. William Jesse Baker to succeed Dr. Frank H. Lahey (resigned) and Dr. Edgar M. Dunstan as consultant to the Council.

Dr. Carl B. Drake, to Advisory Committee to State Journal Advertising Bureau.

Dr. F. S. Crockett, as additional representative to Livestock Conservation, Inc.

COMMITTEE ON CASE FINDING METHODS

Drs. Paul C. Swenson and C. E. de La Chapelle were selected as additional members of the Committee on Case Finding Methods, of which Dr. Sidney Shipman is Chairman.

STATE JOURNAL ADVERTISING BUREAU

Authorization was given for the holding of a conference in 1953 of editors and business managers of the journals of the state medical societies.

U. S. CHAMBER OF COMMERCE

Because of the many advantages of constituent, or voting, membership in the Chamber of Commerce of the United States, the Board of Trustees authorized retention of such membership by the American Medical Association.

JOINT COMMISSION FOR IMPROVEMENT OF CARE OF PATIENT

Approval was given to the report of the Committee for the Improvement of the Nursing Services of the Joint Commission for the Improvement of the Care of the Patient. Among the subjects mentioned in the report are provisions for more effective administrators, supervisors, consultants, and faculty; in-service training for all personnel; recruitment; and experimentation.

Also approved was a resolution, adopted at the meeting of the Joint Commission held on Sept. 22, 1952, which contained recommendations to the hospital association and the nursing and medical organizations to provide for cooperative participation in planning and action for patient care.

COMMITTEE ON CAREERS IN NURSING

Again, for the year 1953, the Board authorized an appropriation of $10,000 to further the nurse recruitment program of the Committee on Careers in Nursing.

ADVISORY COMMITTEE ON POLICY

In accordance with action taken in June, 1952, by the House of Delegates in approving, in principle, a recommendation from the committee appointed to study the Twelve Point Program, an Advisory Committee on Policy was appointed, composed of Drs. E. L. Henderson (Chairman), E. E. Irons, Allen Bunce, Raymond Zech, and H. Russell Brown.

COUNCIL ON MEDICAL SERVICE

As of Jan. 1, 1953, Mr. George Cooley of the Council on Medical Service will be designated Associate Secretary and Mr. Howard Brower, Assistant Secretary.

COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE

On recommendation of the Council on National Emergency Medical Service, the Board authorized that a communication be sent to the Department of Defense requesting information which would show the percentage of time spent by physicians in uniform in the treatment of other than military personnel as well as a statement outlining the intended future dependent medical care program of that department and suggesting that a pilot study be made to obtain the necessary statistical data.

The Board also approved of a suggestion that the Secretary of Defense be urged to appoint a civilian committee to investigate ways of increasing the attractiveness of service in the military and naval medical corps and to develop an effective program for medical officer and allied health personnel procurement.

INVITATIONS

Invitations for the Clinical Sessions to be held in 1956 and 1957 came from Seattle, Los Angeles, and Detroit. Since sessions are planned only three years in advance, the invitations will be held in abeyance until the proper time for their consideration.

RESEARCH IN MEDICINE

At the request of the Will Rogers Memorial Hospital at Saranac Lake, New York, the Board approved of sponsorship by the American Medical Association in the efforts of the hospital to establish yearly grants for research in various diseases.

JAPAN MEDICAL ASSOCIATION

In accordance with the request of the Japan Medical Association, the Council on Pharmacy and Chemistry was authorized to cooperate with that association in its consideration of the products of pharmaceutical houses.

LIAISON WITH AMERICAN LEGION

As a liaison with the American Legion the Board appointed Drs. E. S. Hamilton (Chairman), W. B. Martin, James R. McVay, Louis Orr II, J. D. McCarthy, and E. L. Henderson (consultant).

MEDICAL NEWS

ALABAMA

Surgeons Meeting in Tuscaloosa.—The first scientific meeting of the Alabama Chapter of the American College of Surgeons will be held under the presidency of Dr. Harvey B. Searcy, Tuscaloosa, Jan. 17, in the physics building, University of Alabama, Tuscaloosa. The meeting is dedicated to the memory of Dr. James M. Mason, a founder, governor, and regent of the American College of Surgeons. Presentations by out-of-state speakers will include:

Use of Medullary Nail in Fractures, Leslie V. Rush, Meridian, Miss.
Ectopic Pregnancy Versus Corpus Luteal and Graafian Follicle Cysts with Hemoperitoneum and Culdoscopy as a Diagnostic Aid, William T. Black Jr., Memphis, Tenn.
Surgical Shock, J. Ross Veal, Washington, D. C.
Cancer—What is Being Done at Memorial Hospital in New York, Isabel M. Scharnagel, New York.

There will be panel discussions on "Surgery of the Thyroid" and "Trends in Surgical Therapy." At 7 p. m. a social hour followed by dinner is scheduled at the Tuscaloosa Country Club. Dr. Joseph M. Donald, Birmingham, will speak on "The Aims and Objects of the College." Dr. Frank E. Wilson, director, Washington office, American Medical Association, will discuss "Medical Legislation," and Robert B. Carr, presiding judge of the Court of Appeals, Montgomery, will talk on "Facing the Future." Registration fee, $5, includes luncheon ticket; tickets for dinner may be secured at the registration desk.

The Alabama Academy of Ear, Eye, Nose and Throat, which will hold its meeting in the afternoon, will present the following program, ending with a panel discussion and questions from the floor:

Interesting Aspects of Mastoiditis, Frank S. Moody, Birmingham.
Keratitis Sicca, Nathan E. Miles, Birmingham.
Retinal Detachments, Karl B. Benkwith, Montgomery.
Fenestration Operation for the Nonfenestrating Physician, J. Brown Farrior, Tampa, Fla.

ARIZONA

Meeting of General Practitioners.—The Arizona Academy of General Practice will hold its first annual meeting in Safford, Jan. 24-25. Dr. Frederick W. Knight will serve as morning moderator on Saturday for a program presented by faculty members of the University of Utah College of Medicine, Salt Lake City. Dr. William H. Moretz will discuss injuries of the hand; Dr. John F. Waldo, respiratory infections; and Dr. Emil G. Holmstrom, functional bleeding. In the afternoon Dr. G. Calvin Williamson, Yuma, will serve as moderator for the following program:

Treatment of Severe Sprains of the Ankle, Morton H. Leonard, El Paso, Texas.
Recent Advances in Abdominal Surgery, William H. Moretz.
Diagnosis and Management of the Acute Phase of Poliomyelitis, John F. Waldo.

At 7 p. m. there will be a cocktail dinner party at the Safford Inn. On Sunday morning Dr. Lucille M. Dagres, Phoenix, will act as moderator for the following program:

Management of RH Problems, Emil G. Holmstrom.
Uses of the Antibiotics, John F. Waldo.
Advances in Vascular Surgery, William H. Moretz.

General practitioners in the state who are not members of the academy are invited to notify Dr. Donald E. Nelson, Safford, of their intention to attend.

CALIFORNIA

San Diego Begins Fluoridation.—San Diego recently began fluoridation of its public water supply. Fluoridation is now being used in five California cities with a total population of about 1,225,000 persons.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Congenital Heart Study Group.—Physicians are invited to attend weekly meetings of the Congenital Heart Study Group Mondays at 10 a. m. in room 437, Clinic Building, University of California Medical Center, San Francisco. Congenital heart disease is discussed by an interdepartmental panel from the faculty, and clinical problems are presented. Physicians wishing to attend may have their names placed on the mailing list for announcements by communicating with the secretary of the cardiovascular board, MOntrose 4-3600, local 498.

COLORADO

Personal.—Dr. Ward Darley, Denver, dean of the University of Colorado's department of medicine, has been awarded the 1952 General Rose Memorial Hospital citation. Dr. Darley was recently elected president of the Association of American Medical Colleges (*J. A. M. A.* **151:**53 [Jan. 3] 1953).

Course in Metabolism.—A postgraduate course in metabolism will be presented at the University of Colorado Medical Center, Denver, Jan. 26-29, under the direction of Dr. Joseph H. Holmes. Dr. De Witt Stetten Jr., chief of the division of nutrition and physiology, Public Health Research Institute, New York, will be the guest lecturer. Registration fee is $5; tuition, $10. For information write to the Office of Graduate and Postgraduate Education, University of Colorado Medical Center, 4200 E. Ninth Ave., Denver 20.

CONNECTICUT

Dr. Colbert Appointed Dean at St. Louis.—Dr. James W. Colbert Jr., assistant dean in charge of postgraduate studies at Yale University School of Medicine, New Haven, has been appointed dean of the St. Louis University School of Medicine and will assume his duties in March. Dr. Colbert, who also served as chairman of the University Committee for Postgraduate Medical Education and chairman of the Postgraduate Education Committee, Connecticut State Medical Society, was previously affiliated with Bellevue Hospital in New York and served in the U. S. Army Medical Corps in Europe (1946-1947), later returning to Munich, Germany, where he was clinical director of a hepatitis research team and technical director of the Hepatitis Laboratory, U. S. Army. In 1950 he became assistant professor of medicine at Yale, after having served in the departments of internal and preventive medicine; associate physician, Grace-New Haven Community Hospital; and director of medical education, Middlesex Hospital, Middletown, Conn.

DISTRICT OF COLUMBIA

Meeting of Gynecologists.—The Washington Gynecological Society will meet for dinner at the Willard Hotel Jan. 24 at 7 p. m. Following the dinner, Dr. Albert H. Aldridge, clinical professor of gynecology and obstetrics at Columbia University College of Physicians and Surgeons, New York, will speak on "Vesicovaginal Fistula."

Personal.—Dr. Sara E. Branham, Bethesda, Md., senior bacteriologist at the National Institutes of Health, recently received the distinguished service citation of the University of Chicago's Medical Alumni Association. Other Washington area physicians who received distinguished service certificates included Dr. Joseph L. Johnson, dean of Howard University College of Medicine, Washington, D. C.; Dr. Charles L. Dunham, chief of Medical Division of Biology and Medicine of the U. S. Atomic Energy Commission, Washington, D. C.; and Dr. Francis B. Gordon, of the Chemical Corps Biological Laboratories, Camp Detrick, Md.

Society News.—Drs. Frank D. Costenbader and W. Cabell Moore, Washington, D. C., were recently awarded certificates for meritorious service "to the medical profession and the District of Columbia" by the Medical Society of the District of Columbia. Dr. Costenbader's citation read, in part: "First

President of the Medical Service of the District of Columbia, he is largely responsible for its existence and for the efforts of the medical profession to make the costs of medical care less burdensome to the citizens of the Nation's Capital." Dr. Moore received his award because, "as a pioneer in industrial medicine, he rendered conscientious and skillful service to the employees under his supervision. As Chairman of the Medical Society's Committee on Industrial Medicine, he labored diligently and successfully in the interest of justice to physicians and to their patients."

GEORGIA

Personal.—Dr. Russell E. Andrews, Rome, was recently appointed plant physician at the Celanese Corporation in Rome to replace Dr. Walter G. Hackett, who has been called to military duty.——Friends of Dr. J. Wallace Daniel of Claxton have presented his portrait to be hung in the Evans County Health Center in recognition of Dr. Daniel's service to the community in over 50 years of practice.

County Society Establishes Witman Lectureship.—Bibb County Medical Society has announced an annual lectureship designed to bring outstanding medical authorities to Macon. Sponsored by Mr. Michael J. Witman in memory of his son, the series will be known as the Michael J. Witman memorial lecture. Dr. Samuel Proger, professor of medicine at Tufts College Medical School, Boston, has been invited to deliver the first lecture Feb. 27.

ILLINOIS

Dr. Bettag Appointed Director of Public Welfare.—Governor-elect Stratton has appointed as director of public welfare for the state of Illinois Dr. Otto L. Bettag, who has been tuberculosis control officer for Chicago and medical director of the Municipal Tuberculosis Sanitarium. Dr. Bettag was tuberculosis control officer for the Illinois Department of Public Safety from September, 1939, to August, 1949, during which period he was also medical director of the Livingston County Sanatorium in Pontiac. A member of the state welfare advisory committee for 12 years, he also served as chairman of a national committee for the study of diseases in mental institutions in the United States, Canada, and Mexico. He is a lecturer on hospital administration at Northwestern University and the University of Chicago and is a medical advisor to the Selective Service System.

Chicago

Lecture on Angina Pectoris.—The first of a series of lectures on advances in medicine, established through the generosity of the Transparent Package Foundation of Chicago, will be held at Michael Reese Hospital, Jan. 23 at 8 p. m. "The Pathogenesis of Angina Pectoris and Some Clinical Implications" will be discussed by Dr. Herrman L. Blumgart, physician-in-chief of Beth Israel Hospital and professor of medicine at Harvard Medical School, Boston.

Institute of Medicine Election.—The Institute of Medicine of Chicago announces the election of the following officers for 1953: Dr. Lewis J. Pollock, president; Dr. Earle B. Fowler, vice-president; Dr. George H. Coleman, secretary; and Dr. E. Lee Strohl, treasurer. Dr. Henry T. Ricketts continues as chairman of the board of governors. New members of the board of governors, elected at the annual meeting of the institute, are: Dr. John M. Dorsey, Charles W. Freeman, D.D.S., Dr. Edwin F. Hirsch, and Dr. Vincent J. O'Conor.

IOWA

Postgraduate Course in Des Moines.—The Iowa Academy of General Practice will present the following program at the Hotel Savery, Des Moines, Jan. 22:

Office Gynecology, Walter J. Reich, Chicago.
Common Pediatric Behavior Problems, Mark L. Floyd, Iowa City.
Relationship of Veterinary Medicine to Man, Ival A. Merchant, D.V.M. Ames.
Common Gynecological Surgical Procedures, Walter J. Reich, Chicago.
Ingestion of Poisons, Mark L. Floyd, Iowa City.

Personal.—After more than 40 years of practice in Des Moines, Dr. Daniel J. Glomset has retired and will make his home in Santa Barbara, Calif.——Dr. William H. Thomas, who has practiced medicine in Iowa for 50 years, was recently feted by the citizens of McGregor, at a picnic in the school grounds, followed by a program at the school auditorium.——Dr. Raymond R. Rembolt, Iowa City, director of the Iowa Hospital-School for Severely Handicapped Children and of the state services for crippled children, has been named to the executive committee of the American Academy for Cerebral Palsy.

MASSACHUSETTS

Symposium on Pediatrics.—Drs. Sydney S. Gellis, George E. Gardner, and Orvar Swenson, all of Boston, will present a symposium on pediatrics before the Norfolk District Medical Society meeting at the Boston Medical Library at 8 p. m., Jan. 27.

Tufts Medical Alumni Lecture.—This lecture will be given at the Tufts College Medical School, Feb. 3 at 11 a. m. by Dr. Joseph B. Kirsner, professor of medicine, University of Chicago School of Medicine, who will speak on "Recent Advances in Gastroenterology." Physicians and students are invited.

MICHIGAN

Symposium on Blood.—Wayne University College of Medicine, Detroit, will present its second annual symposium on blood in an all-day session Jan. 17 in the auditorium (645 Mullett St.). Twenty-five papers will be presented.

MINNESOTA

Society News.—The Red River Valley Medical Society, with headquarters at Crookston, has elected the following officers for 1953: president, Dr. John L. Delmore Jr., Roseau; vice-president, Dr. Anthony S. Berlin, Hallock; and secretary-treasurer, Dr. Russell O. Sather, Crookston. The next annual meeting will be held in Crookston in December.

Pathological Conferences.—The Minnesota Department of Health is offering a program in professional education for physicians, consisting of pathological conferences on cancer and heart disease as a part of regular hospital staff meetings. These conferences are co-sponsored by the Minnesota Medical Association, University of Minnesota Medical School, Minnesota Cancer Society, and the Minnesota Heart Association.

NEW HAMPSHIRE

Cardiac Conference.—The Frisbie Memorial Hospital staff of Rochester, in cooperation with the Wentworth Hospital staff of Dover, recently presented the scientific program for the New Hampshire Heart Association. The case presentations demonstrated hemopericardium as a complication of cardiac infarction, and atrial septal defect with clinical signs of tricuspid insufficiency and mitral stenosis. Guest physicians participating included Drs. John H. Miller, Laconia, Charles S. Houston, Exeter, and Sven M. Gundersen, Hanover. Drs. Peter T. Lampesis and William D. Crandall of Dover and Samuel J. King of Rochester presented the cases, and Dr. W. Edmour Preeourt, chief of the Frisbie staff, presided.

NEW JERSEY

Annual Conference on Protein Metabolism.—Rutgers University, New Brunswick, announces the annual conference on protein metabolism, to be held Jan. 30-31. Among the papers scheduled are the following:

Structure of Hemoglobin and the Function of Its Parts, Sam Granick, Ph.D., New York.
Problems of the Nucleoproteins, Erwin Chargaff, Ph.D., New York.
Metabolism of Virus-Infected Cells, Seymour S. Cohen, Ph.D., Philadelphia.
Lipoproteins, John L. Oncley, Ph.D., Boston.
Protein Complexes of Mucopolysaccharides, Karl Meyer, New York.
Mammalian Cytochromes, Walter W. Wainio, Ph.D., New Brunswick.

NEW YORK

Narcotic Addicts.—According to Dr. Herman E. Hilleboe, Albany, state health commissioner, 927 persons had been reported to the department as narcotic addicts as of Dec. 1, 1952. Of these, 222 were youths under 21, all but 6 being from New York City. Of the 756 addicts reported from New York City, 370 were women; of the upstate total of 171, 89 were women.

New Plan for Medicolegal Cooperation.—According to Judge David W. Peck of the appellate division, a new plan for solving conflicting medical claims filed by plaintiffs and defendants will be tried out for one year in the supreme court in New York County. Under the plan the New York Academy of Medicine and the New York County Medical Society will appoint a panel of 60 or 70 experts in various branches of medicine to aid the supreme court in personal injury cases. Justice Peck expressed the hope that this pioneer plan, which will be financed by a grant of $40,000 from the Alfred P. Sloan Foundation and the Ford Motor Company Fund, may become "a historic milestone in judicial progress—a pattern for the court system throughout the nation."

Prize Essay Contests.—The Lucien Howe prize and the Merritt H. Cash prize will be open for competition at the next annual meeting of the Medical Society of the State of New York, May 4-9, in Buffalo. The Lucien Howe prize of $100, presented for the best original contribution on some branch of surgery, preferably ophthalmology, is not restricted to members of the state society. The Merritt H. Cash prize of $100 for the best original essay is limited to members of the Medical Society of the State of New York. Essays must be typewritten or printed and should bear the name of the prize for which the essay is submitted and a motto or device as the only means of identification of the author. Prize-winning essays become the property of the Medical Society of the State of New York, to be published as it may direct. All essays must be received not later than Feb. 2 by Dr. Mather Cleveland, chairman of the Committee on Prize Essays of the Medical Society of the State of New York, 386 Fourth Ave., New York 16.

New York City

Dr. Schick Honored.—Dr. Bela Schick was recently honored at a dinner given by Yeshiva University College of Medicine, which bestowed on him an honorary degree of doctor of humane letters. Announcement was made of plans to raise a million dollar fund to establish a Bela Schick department of pediatrics at the college.

Society News.—The New York Diabetes Association has elected Dr. Thomas H. McGavack, president, Dr. Herbert Pollack and Dr. Henry E. Marks, vice-presidents, Dr. Winifred C. Loughlin, secretary, and Mr. David Handman, treasurer.——A charter was recently granted for a Bronx Chapter of the American College of Surgeons. All present members of the college are eligible for membership. Those admitted before March 1 will be regarded as charter members. Application forms may be obtained from Dr. Joseph Deutsch, secretary-treasurer, 269 Alexander Ave., New York 54; phone: Mott Haven 9-6060. Dr. Edward R. Cunniffee, New York, is president of the chapter.

Occupational Medicine and Dentistry.—A one day workshop on "Trends in Public Health and Industrial Dentistry," sponsored by the First District Dental Society of the State of New York, will be held Jan. 30 at the Hotel Statler to consider fundamental concepts of occupational medicine as they relate to the practice of dentistry in the private office and in voluntary and official health agencies. Panel discussions on "Occupational Oral Medicine and Public Health" will be held during the morning session, and, in the afternoon, panels will be presented on "Dental Care in Occupational Health Programs" and "The Private Dentist's Role in Program Planning: Practical Problems and Issues." At 8 p. m. Dr. Henry E. Meleney will deliver a lecture on "Medical-Dental Cooperation in Public Health and Occupational Health." Among the physicians participating in the program are Drs. Anthony J. Lanza, David H. Goldstein, William F. Harrigan, D. J. Kaliski, and E. Michael Bluestone.

Rheumatic Disorders in Industry.—A meeting, dealing with techniques for keeping patients employable, will be held at 8:30 p. m. Feb. 4-5 at the New York Academy of Medicine Building, 2 E. 103rd St., with Dr. Anthony J. Lanza as chairman. On Wednesday the following program will be presented:

Incidence of Rheumatic Diseases in Industry, Joseph J. Bunim, Bethesda, Md.
Medical Recording of Rheumatic Diseases, S. Charles Franco.
Compensation Aspects of Rheumatic Diseases, Willis M. Weeden.
Role of Physical Rehabilitation in Keeping the Patient with Rheumatoid Arthritis Employable, Edward W. Lowman.
Vocational Rehabilitation of the Patient with Rheumatoid Arthritis, Mr. Henry Viscardi Jr.

On Thursday, the following physicians will discuss techniques for keeping patients employable despite certain disabling conditions: Dr. Charles A. Ragan (rheumatoid arthritis); Dr. Alexander Gutman (gout); Dr. Edward F. Hartung (osteoarthritis); Dr. Otto Steinbrocker (shoulder syndrome); Dr. Richard H. Freyberg (extra-articular rheumatism); and Dr. Walter A. L. Thompson (low back pain). An invitation to the conference may be obtained from the New York Chapter, Arthritis and Rheumatism Foundation, 432 Fourth Ave., New York 16; LExington 2-5719.

OHIO

New Headquarters for Toledo Academy.—The Toledo Academy of Medicine recently moved into its new office and library building at 3101 Collingwood Ave., Toledo. Dr. Edward J. McCormick, Toledo, President-Elect of the American Medical Association, delivered an address at the ceremony dedicating the new headquarters.

Toledo Academy of Medicine.

PENNSYLVANIA

Hospital News.—Two new wings and an apartment house were recently dedicated by the State Hospital for Crippled Children at Elizabethtown. Among those participating in the ceremonies were state secretary of health, Dr. Russell E. Teague, Philadelphia, and Dr. Tom Outland, chief surgeon of the hospital.

Seventeen Rheumatic Fever Clinics.—A rheumatic fever clinic has been established at the Lancaster General Hospital under the direction of Dr. Carl H. Hoover. Held on the first and third Saturdays of each month from 10 a. m. to 12 noon, this is the 17th clinic to be sponsored by the state health department in its program of prevention, diagnosis, care, and treatment of rheumatic fever or rheumatic heart disease in Pennsylvania. Anyone under the age of 21 is eligible for examination at the clinics without cost to the family. All patients are seen by appointment requested by the family physician. The Lancaster clinic aims to register all patients in the vicinity who have a history of rheumatic fever or rheumatic heart disease; to provide diagnostic and consultation service for the physicians of the area, including electrocardiographic tracings, laboratory, and x-ray studies; and

to share the financial burden of the rheumatic fever program in the community. The clinic will cooperate with the present cardiac clinics in the community.

TEXAS

Five More Continuation Courses.—Five new continuation courses for practicing physicians of the Houston area have been announced by the University of Texas Postgraduate School of Medicine, Houston. The courses, presented in cooperation with the Texas State Medical Association, the state department of health, and the Texas Academy of General Practice, are approved for formal credit by the Academy of General Practice. They are being given in the auditorium of the M. D. Anderson Hospital for Cancer Research: electrocardiography, Mondays, 8-9 p. m., beginning Jan. 12 for 12 weeks; pediatrics, Tuesdays, 8-9 p. m., beginning Jan. 13 for 12 sessions; medicine, Thursdays, 7:30-8:30 p. m., beginning Jan. 15 for 15 sessions; and surgery, Thursdays, 8:30-9:30 p. m., beginning Jan. 15 for 15 sessions. Psychiatry will be presented in two full day sessions March 12 and 13. Information may be obtained from the Postgraduate School of Medicine office in Arabia Temple Crippled Children's Clinic, 1400 Outer Belt Drive, Texas Medical Center, Houston.

WEST VIRGINIA

Society News.—The West Virginia State Medical Association recently approved (1) the creation of a section on neurology, neurosurgery, and psychiatry and (2) affiliation of the West Virginia Diabetes Association with the West Virginia State Medical Association, the latter contingent on a proviso that the membership of the diabetes association be limited to physicians.

Physicians in the Service.—Dr. Robert W. Hibbard and Dr. Robert J. Van de Wetering, who have been serving in the United States Naval Reserve for several months, have been released from active service. Dr. Hibbard is serving his third year residency in psychiatry at La Rue Carter Memorial Hospital, Indianapolis, and Dr. Van de Wetering recently began his residency there in the same specialty.——Dr. George W. Hogshead of Nitro has been recalled to active service in the Medical Corps of the Navy and is now located at the Naval Air Station in Norfolk, Va.

GENERAL

American Neurologists Honored.—The German Society of Neurology has elected Dr. Percival Bailey, Chicago, as honorary member, and as corresponding members, Drs. Wilder G. Penfield, Montreal, Canada, Hans H. Reese, Madison, Gabriel Steiner, Detroit, and Robert Wartenberg, San Francisco.

Society Elections.—At the annual meeting of the Southwestern Medical Association Dr. Wesley O. Connor Jr., Albuquerque, N. Mex., was installed as president and the following officers were chosen: Dr. Willard W. Schuessler, El Paso, Texas, president-elect; Dr. Harold W. Kohl, Tucson, Ariz., Dr. John H. Dettweiler, Albuquerque, and Dr. Leslie B. Smith, Phoenix, Ariz., vice-presidents; and Dr. Celso Stapp, El Paso, secretary-treasurer. The 1953 convention will be held in Tucson.

International Medical Assembly.—The annual midwinter meeting of the International Medical Assembly of Southwest Texas will be held in San Antonio, Texas, Jan. 27-29. A clinicopathological conference is scheduled for Tuesday, and symposiums on cervical carcinoma, bone tumors, shock and resuscitation, and vascular disease for Wednesday and Thursday. A general luncheon, stag party, dinner-dance, and sectional luncheons will be held; all-inclusive registration fee, $20. Requests for information may be addressed to P. O. Box 2445, San Antonio.

Orthopedic Surgeons Meet in Chicago.—The 20th annual meeting of the American Academy of Orthopaedic Surgeons, Inc., will be held at the Palmer House, Chicago, Jan. 24-29, under the presidency of Dr. Francis M. McKeever, Los Angeles. Instructional courses will be held in the morning, Jan. 25-28. A faculty of 81 members will present 5 three hour courses, 37 two hour courses, and 46 one hour courses. During the scientific sessions, 28 papers and 17 film presentations will be made. On Sunday at 2:30 p. m. there will be a bone tumor symposium. Distinguished guests and the winner of the Kappa Delta award will be presented at the annual banquet, in the ballroom on Wednesday at 7 p. m.

Muscular Dystrophy Fund Campaign.—The second nationwide appeal for funds for muscular dystrophy research is currently being conducted by the 89 member chapters of the Muscular Dystrophy Associations of America, Inc. (580 Fifth Ave., New York 36). U. S. Supreme Court Justice William O. Douglas is serving as honorary national chairman for the appeal, and Dean Martin and Jerry Lewis will serve as national co-chairmen. As a result of the first nationwide appeal in 1951, muscular dystrophy research projects have been established in 17 laboratories in the United States and abroad. Contributions may be sent to local M. D. A. chapters or to the headquarters in New York.

Meeting of Anesthesiologists.—The winter meeting of the New England Society of Anesthesiologists will be held at St. Francis Hospital, Hartford, Conn., Feb. 6. The morning will be devoted to an operating room schedule and the afternoon, to presentation of the following papers in the McAuliffe Memorial Auditorium:

Transfusion Reactions and Anesthesia, Peter A. Tucci, Hartford.
Antisepsis of Endotracheal Tubes, Wilfrid L. McDonald, Hartford.
Evaluation of Succinylcholine Chloride, John A. Pierce, Hartford.
Clinical Impressions of Hexamathonium Salts, Ranald J. Steven, Hartford.

In the evening, "Recent Laboratory Studies and Clinical Applications of Cyclopropane Anesthesia" will be presented in the auditorium by Dr. Emery A. Rovenstine, professor of anesthesia, New York University College of Medicine, New York.

CANADA

Hospital News.—The Hotel-Dieu Hospital, Montreal, announces the creation of a new clinical research department, under the charge of Dr. Jacques Genest, formerly of the Johns Hopkins Hospital, Baltimore, and the Rockefeller Institute for Medical Research, New York. The department includes a five room laboratory, a 24 bed unit, an outpatient department, and an animal room. The main work will be devoted to problems related to the mechanism of edema and of hypertensive disease and their relation with the sodium-retaining factor of the adrenals.

LATIN AMERICA

Brazil Stamp.—Brazil has issued a special stamp honoring the Second Congress of Industrial Medicine recently held in Rio de Janeiro. The 3.80 cruzeiro brown and green adhesive shows a global view of the South American continent at left, a caduceus, and an aerial view of Rio Harbor.

FOREIGN

Singapore Pediatric Society Formed.—The Singapore Pediatric Society was recently formed to advance the knowledge and practice of pediatrics and to promote child health. This is the first pediatric society to be formed in Malaya.

Otorhinolaryngological Meeting.—The annual meeting of the German Society for Otorhinolaryngology will be held in Wiesbaden May 19-23. The following topics have been scheduled for discussion: "Esophagoscopy and Endoscopic Treatment of the Esophagus," "Surgery of the Esophagus," and "Relations of the Sympathetic Nervous System to Otorhinolaryngologic Diseases."

Gynecologic Courses.—The theme of the French Courses of Gynecology (former French Congress of Gynecology), which will be held in Bordeaux, May 25-28, will be "Sclerous-Cystic Ovaritis." Registration closes April 15; fee 4,000 francs (approximately $11.60). Information may be obtained from the secretary-general, Dr. Robert Sénéchal, 31, rue Raynouard, Paris (16e).

Ophthalmologic Society.—This society of Egypt will celebrate its 50th anniversary during its annual meeting in Cairo in February. Among the physicians participating in the program will be Dr. David G. Cogan, Boston, and Dr. Phillips Thygeson, San Jose, Calif. Information may be obtained from Dr. Mohammad Khalil, Honorary Secretary, 15 A Sherif Pasha, Str., Cairo, Egypt.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Annual Session, New York, June 1-5.

1953 Clinical Session, St. Louis, Dec. 1-4.

1954 Annual Session, San Francisco, June 21-25.

1954 Clinical Session, Miami, Florida, Nov. 30-Dec. 3.

ANNUAL CONGRESS ON INDUSTRIAL HEALTH, Drake Hotel, Chicago, Jan. 20-22. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE, Palmer House, Chicago, Feb. 9-10. Dr. Donald G. Anderson, 535 North Dearborn St., Chicago, Secretary.

NATIONAL CONFERENCE ON RURAL HEALTH, Roanoke Hotel, Roanoke, Va., Feb. 27-28. Mrs. Arline Hibbard, 535 N. Dearborn St., Chicago 10, Secretary.

AMERICAN ACADEMY OF ALLERGY, Statler Hotel, Boston, Feb. 26-28. Dr. Ben Z. Rappaport, 55 East Washington St., Chicago, Secretary.

AMERICAN ACADEMY OF FORENSIC SCIENCES, Drake Hotel, Chicago, Feb. 26-28. Prof. Ralph F. Turner, Michigan State College, Dept. of Police Administration, East Lansing, Mich., Secretary.

AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS, Palmer House, Chicago. Jan. 24-29. Dr. John R. Norcross, 122 South Michigan Avenue, Chicago 3, Secretary.

AMERICAN COLLEGE OF RADIOLOGY, Palmer House, Chicago, Feb. 6. Mr. William C. Stronach, 20 North Wacker Drive, Chicago 6, Executive Secretary.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY:

MIDDLE SECTION, Drake Hotel, Chicago, Jan. 19. Dr. Ralph J. McQuiston, 20 North Meridian St., Indianapolis 4, Chairman.

WESTERN SECTION, Elks Club, Los Angeles, Jan. 24. Dr. Howard P. House, 1136 West Sixth St., Los Angeles 14, Chairman.

AMERICAN ORTHOPSYCHIATRIC ASSOCIATION, Hotel Statler, Cleveland, Feb. 23-25. Dr. Exie E. Welsch, 303 Lexington Ave., New York 16, Secretary.

AMERICAN PROTESTANT HOSPITAL ASSOCIATION, Palmer House, Chicago, Feb. 10-13. Mr. Albert G. Hahn, Protestant Deaconess Hospital, Evansville, Ind., Executive Secretary.

ATLANTA GRADUATE MEDICAL ASSEMBLY, Atlanta-Biltmore Hotel, Atlanta, Ga., Feb. 23-25. Dr. Mark S. Dougherty, 15 Peachtree St. N.W., Atlanta, Ga., Chairman.

CENTRAL SURGICAL ASSOCIATION, Drake Hotel, Chicago, March 5-7. Dr. Robert M. Zollinger, University Hospital, Columbus 10, Ohio, Secretary.

CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE, Palmer House, Chicago, March 3-6. Dr. Maurice M. Hoeltgen, 86 East Randolph St., Chicago 1, Secretary.

INTERNATIONAL POST-GRADUATE MEDICAL ASSEMBLY OF SOUTHWEST TEXAS, Municipal Auditorium, San Antonio, Texas, Jan. 27-29. Dr. John M. Smith Jr., P. O. Box 2445, San Antonio 6, Texas, Secretary.

MICHIGAN CLINICAL INSTITUTE, Sheraton Hotel, Detroit, March 11-13. Dr. J. M. Robb, 606 Townsend St., Lansing 15, Mich., General Chairman.

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY, Municipal Auditorium, New Orleans, March 2-5. Dr. Woodward D. Beacham, 1430 Tulane Avenue, New Orleans 12, Secretary.

PACIFIC COAST SURGICAL ASSOCIATION, Seattle and Harrison, Hot Springs, B. C., Feb. 16-20. Dr. Carleton Mathewson Jr., Stanford University Hospital, San Francisco, Secretary.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:

COLORADO, Denver, February 17, Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Executive Secretary.

DELAWARE, Wilmington, Feb. 27. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.

VIRGINIA, Veterans Administration Hospital, Hampton, Feb. 26. Dr. John B. McKee, 114 West Boscawen St., Winchester, Chairman.

SECTIONAL MEETINGS, AMERICAN COLLEGE OF SURGEONS:

CINCINNATI, The Netherland Plaza, Jan. 19-21. Dr. M. M. Zinninger, Cincinnati General Hospital, Cincinnati 29, Chairman.

ATLANTA, GA., The Atlanta Biltmore, Feb. 23-24. Dr. William G. Hamm, 384 Peachtree St. N.E., Atlanta, Chairman.

BOSTON, Statler Hotel, March 2-5. Dr. Samuel F. Marshall, 605 Commonwealth Ave., Boston, Chairman.

SOCIETY OF UNIVERSITY SURGEONS, Washington University, St. Louis, Feb. 12-14. Dr. Clarence Dennis, Kings County Hospital, Brooklyn, N. Y., Secretary.

SOUTHEASTERN SURGICAL CONGRESS, Louisville, Ky., March 9-12. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.

U. S. CHAPTER, INTERNATIONAL COLLEGE OF SURGEONS, SURGICAL DIVISION MEETINGS:

TRI-STATE ASSEMBLY OF TEXAS, Arkansas and Oklahoma, Adolphus Hotel, Dallas, Texas, Feb. 5-7. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Chairman.

PENNSYLVANIA AND SURROUNDING STATES, Bellevue-Stratford Hotel, Philadelphia, Feb. 13-14. Dr. Moses Behrend, 225 South 17th St., Philadelphia, Chairman.

WESTERN SOCIETY FOR CLINICAL RESEARCH, Carmel, Calif., Jan. 30-31. Dr. Herbert N. Hultgren, Stanford Hospital, San Francisco 15, Secretary.

INTERNATIONAL

CONGRESS OF INTERNATIONAL LEAGUE AGAINST RHEUMATISM, Geneva and Zurich, Switzerland, Aug. 24-29. For information write: Dr. W. Tegner, The London Hospital, London E.1, England.

CONGRESS OF THE INTERNATIONAL SOCIETY OF ANGIOLOGY, Lisbon, Portugal, Sept. 18-20. Dr. Henry Haimovici, 105 East 90th St., New York 28, N. Y., U. S. A., Secretary.

CONGRESS OF THE INTERNATIONAL SOCIETY OF SURGERY, Lisbon, Portugal, Sept. 14-20. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

INTER-AMERICAN SESSION, AMERICAN COLLEGE OF SURGEONS, Paulista Medical Association Bldg., Sao Paulo, Brazil, Feb. 9-12. Dr. Moacyr Eyck Alvaro, 1151 Conselacao, Sao Paulo, Brazil, Chairman.

INTERNATIONAL CONGRESS OF AUDIOLOGY, Groningen, Netherlands, June 5-6. Dr. Gunnar Holmgren, Strandvagen 5A, Stockholm, Sweden, President.

INTERNATIONAL CONGRESS OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY, Boston, Mass., U. S. A., Aug. 18-21. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Mass., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF HIPPOCRATIC MEDICINE, Evian, France, Sept. 3-6. Prof. P. Delore, 13 rue Jarente, Lyons, France, Secretary-General.

INTERNATIONAL CONGRESS FOR HISTORY OF SCIENCE, Jerusalem, Israel, August 3-7. Prof. F. S. Bodenheimer, Hebrew University, Jerusalem, Israel, President.

INTERNATIONAL CONGRESS ON MEDICAL LIBRARIANSHIP, London, England, July 20-25. Mr. W. R. LeFanu, % London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1, England, Chairman.

INTERNATIONAL CONGRESS OF MICROBIOLOGY, Rome, Italy, Sept. 6-12. For information write: Dr. V. Puntoni, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS OF OTO-NEURO-OPHTHALMOLOGY, Bologna, Italy, May 3-7. Dr. Guiseppe Cristini, Clinica Oculistica, Policlinico, Bologna. Italy, General Secretary.

INTERNATIONAL CONGRESS OF OTORHINOLARYNGOLOGY, Amsterdam, Netherlands, June 8-15. Dr. W. H. Struben, J. J. Viottastraat 1, Amsterdam, Netherlands, Secretary.

INTERNATIONAL CONGRESS OF PAEDIATRICS, Havana, Cuba, Oct. 12-17. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.

INTERNATIONAL CONGRESS OF RADIO-BIOLOGY, Copenhagen, Denmark, July 14-25. Prof. Flemming Norgaard, Oster Voldgade 10, Copenhagen K, Denmark, Secretary General.

INTERNATIONAL CONGRESS OF RADIOLOGY, Copenhagen, Denmark, July 19-25. Professor Flemming Norgaard, 10 Oster Voldgade, Copenhagen K, Denmark, Secretary General.

INTERNATIONAL CONGRESS OF THALASSOTHERAPY, Dubrovnick, Yugoslavia, May 17-25. Prof. C. Plavaic, Mavrodne Republick 51, Belgrade, Yugoslavia, Secretary General.

INTERNATIONAL CONGRESSES OF TROPICAL MEDICINE AND MALARIA, Istanbul, Turkey, Aug. 28-Sept. 4. Professor Dr. Ihsan Sükrü Aksel, Tunel Meydam, Beyoglu, Istanbul, Turkey, General Secretary.

INTERNATIONAL FERTILITY ASSOCIATION, New York, N. Y., U. S. A., May 25-31. Dr. Abner I. Weisman, 1160 Fifth Avenue, New York 29, N. Y., U. S. A., Associate Secretary General.

INTERNATIONAL HOSPITAL CONGRESS, London, England, May 25-30. Capt. J. E. Stone, 10 Old Jewry, London, EC2, England, Hon. Secretary.

INTERNATIONAL LEPROSY CONGRESS, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

INTERNATIONAL PHYSIOLOGICAL CONGRESS, Montreal, Canada, Aug. 31-Sept. 4. Dr. A. S. V. Burgen, Dept. of Physiology, McGill University, Montreal, Canada, Secretary.

INTERNATIONAL PSYCHO-ANALYTICAL CONGRESS, Bedford College, Regent's Park, London N.W.1, England, July 26-30. Dr. Ruth S. Eissler, 285 Central Park West, New York 24, N. Y., Hon. Secretary.

INTERNATIONAL VETERINARY CONGRESS, Stockholm, Sweden, Aug. 9-15. Prof. Axel Isaksson, Institute of Veterinary Medicine, Stockholm 50, Sweden, Secretary.

PACIFIC SCIENCE CONGRESS, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

PAN AMERICAN CONGRESS OF THE MEDICAL PRESS, Buenos Aires, Argentine, July 12-16. Secretaria del Congress, 763 Uriburu, Buenos Aires, Argentine.

WORLD CONFERENCE ON MEDICAL EDUCATION, British Medical Association House, Tavistock Square, W.C.1, London, England, Aug. 24-29. Secretariat: World Medical Association, 2 East 103d St., New York 29, N. Y., U. S. A.

WORLD CONGRESS OF THE WORLD CONFEDERATION FOR PHYSICAL THERAPY, London, England, Sept. 7-12. Miss M. J. Neilson, Chartered Society of Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C.1, England, Secretary.

WORLD MEDICAL ASSOCIATION, The Hague, Amsterdam, Holland, Aug. 31-Sept. 7. Dr. Louis H. Bauer, 2 East 103d St., New York 29, N. Y., Secretary-General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 23-25. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery.

ALASKA:* *Examination.* Juneau, March 3. On application in other towns where there are board members. *Reciprocity.* On application. Sec., Dr. W. M. Whitehead, Box 140, Juneau.

ARIZONA:* *Examination.* Phoenix, Jan. 20-22. *Reciprocity.* Phoenix, Jan. 24. Sec., Dr. J. H. Patterson, 316 W. McDowell Road, Phoenix.

ARKANSAS:* *Regular. Examination.* Little Rock, June 18-19. Sec., Dr. Joe Verser, Harrisburg. *Homeopathic. Examination.* Little Rock, April 6. Sec., Dr. Carl S. Bungart, 105 North 14th St., Ft. Smith. *Eclectic.* Little Rock, June 4-5. Sec., Dr. Frank C. Smith, 2301 Broadway, Little Rock.

CALIFORNIA: *Examination.* Los Angeles, March 2-5. Sec., Dr. Frederick N. Scatena, 1020 N Street, Sacramento.

CONNECTICUT:* *Medical.* Hartford, March 10-11. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, March 10-11. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

FLORIDA:* Jacksonville, June 28-30. Sec., Dr. Homer Pearson, 701 Dupont Bldg., Miami.

GEORGIA: *Examination.* Atlanta and Augusta, June. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Ex. Sec., Dr. Austin W. Matthis, Agana.

ILLINOIS: Chicago, Jan. 27-29. Supt. of Regis., Mr. Charles F. Kervin, Capitol Bldg., Springfield.

INDIANA: *Examination.* Indianapolis, June 23-25. Ex. Sec., Miss Ruth V. Kirk, 538 K of P Bldg., Indianapolis.

MAINE: Portland, March 10-11. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MINNESOTA:* Minneapolis, Jan. 20-22. Sec., Dr J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSOURI: *Examination.* Jefferson City, Feb. 19-20. Exec. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.

MONTANA: *Examination.* Helena, April 7-8. *Reciprocity.* Helena, April 6. Sec., Dr. S. A. Cooney, 7 West 6th Ave., Helena.

NEBRASKA:* *Examination.* Omaha, June 1953. Director, Mr. Husted K. Watson, Room 1009 State Capitol Bldg., Lincoln 9.

NEVADA:* Carson City, Feb. 2. Dr. George H. Ross, 112 North Curry St., Carson City.

NEW HAMPSHIRE: Concord, March 11-12. Sec., Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: Trenton, June 16-19. Sec., Dr. Earl S. Hallinger, 28 West State St., Trenton.

NEW MEXICO:* Santa Fe, April 13-14. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 27-30. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany 7.

NORTH CAROLINA. *Reciprocity.* Winston Salem, Jan. 19. Sec., Dr. Joseph J. Combs, 716 Professional Bldg., Raleigh.

OKLAHOMA:* *Examination.* Oklahoma City, June 10-11. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

SOUTH CAROLINA: *Examination.* Columbia, Feb. 3. Sec., Mr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA:* Sioux Falls, Jan. 20-21. Exec. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

TEXAS:* Fort Worth, June 22-24. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Ft. Worth 2.

UTAH: *Examination.* Salt Lake City, July. Asst. Dir., Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City.

VERMONT: *Examination.* Burlington, Jan. 29-31. Sec., Dr. F. J. Lawliss, Richford.

VIRGIN ISLANDS: *Examination.* St. Thomas, June 10-11. Sec., Dr. Earle M. Rice, Box 8, St. Thomas.

WASHINGTON:* *Examination.* Seattle, Jan. 25-28. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WYOMING: *Examination.* Cheyenne, Feb. 2. Examinations are regularly scheduled the first Monday of February, June and October of each year. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: *Examination.* Feb. 2 and on application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARKANSAS: *Examination.* Little Rock, May 5-6. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock.

COLORADO: Denver, March 4-5. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.

CONNECTICUT: *Examination.* New Haven, Feb. 14. Executive Assistant, Miss M. G. Reynolds, 110 Whitney Ave., New Haven 10.

FLORIDA: *Examination.* Gainesville, June 6. Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

MICHIGAN: Detroit and Ann Arbor, Feb. 13-14. Sec., Mrs. Ann Baker, 423 W. Michigan Ave., Lansing.

NEW MEXICO: *Examination.* Santa Fe, March 15. Sec., Mrs. Marguerite Cantrell, P. O. Box 1592, Santa Fe.

OKLAHOMA: Oklahoma City, April 3. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: *Examination.* Portland, March 7. Sec., Dr. Charles D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: *Examination.* Providence, Feb. 11. Administrator, Division of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

TEXAS: *Examination.* Dallas and Galveston, April. Sec., Bro. Raphael Wilson, 407 Perry Brooks Bldg., Austin.

WASHINGTON: *Examination.* Seattle, Jan. 21-22. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WISCONSIN: *Examination.* Madison, April 11. Final date for filing application is April 4. Milwaukee, June 13. Final date for filing application is June 6. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

* Basic Science Certificate required.

DEATHS

Shea, John Joseph ⊕ Memphis, Tenn.; born in Memphis Jan. 17, 1889; University and Bellevue Hospital Medical College, New York, 1911; specialist certified by the American Board of Otolaryngology; secretary from 1931 to 1934 and chairman, 1934-1935, Section on Laryngology, Otology, and Rhinology, American Medical Association; president-elect of the American Academy of Ophthalmology and Otolaryngology of which he had been vice-president and member of the council; member and formerly vice-president of the American Laryngological Association; member, formerly member of the council, and president of the American Laryngological, Rhinological and Otological Society; member and formerly member of the council of the American Otological Society; fellow of the American College of Surgeons; served during World War I; affiliated with St. Joseph, Baptist Memorial, Methodist, and Memphis Eye, Ear, Nose and Throat hospitals; died in New Orleans Nov. 28, aged 63.

Benzing, George Jr. ⊕ Cincinnati; University of Cincinnati College of Medicine, 1922; formerly instructor of roentgenology at his alma mater; specialist certified by the American Board of Radiology; member of the Radiological Society of America and the American College of Radiology; served during World War I; during World War II medical advisor for Selective Service, Commonwealth of Kentucky, for fourteen counties in northern Kentucky; director of the x-ray department, Speers Hospital in Dayton, where he was past president of the medical staff; director of x-ray department, St. Elizabeth Hospital and William Booth Memorial Hospital in Covington, Ky.; died Nov. 6, aged 56, of coronary occlusion.

Bissell, Addison Hayes ⊕ Stamford, Conn.; Cornell University Medical College, New York, 1916; served during World War I; fellow of the American College of Surgeons; affiliated with St. Joseph's Hospital and Stamford Hospital, where he died Nov. 20, aged 64, of pneumonia.

Blair, John William ⊕ Harvey, Ill.; Dunham Medical College, Chicago, 1900; died in Homewood Nov. 18, aged 76.

Brannon, Londus Baker ⊕ Manhattan, Ill.; Northwestern University Medical School, Chicago, 1931; at one time Joliet Township health officer; died Dec. 1, aged 50.

Brown, Maurice W., Alameda, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1894; member of the senior board of directors of Alameda Hospital; died Nov. 13, aged 85.

Castellani, Peter Cerillo Fernando, Ormond Beach, Fla.; Temple University School of Medicine, Philadelphia, 1926; died Nov. 10, aged 57.

Chmelik, Frank Joseph ⊕ Joliet, Ill.; Chicago College of Medicine and Surgery, 1916; served during World War I; physician for the city police and fire board; for many years penitentiary physician; affiliated with St. Joseph's and Silver Cross hospitals; died Dec. 8, aged 61, of carcinoma of the stomach.

Cohen, Oscar Thurman ⊕ Jonesboro, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1911; affiliated with St. Bernard's Hospital; died in Memphis, Tenn., Nov. 13, aged 63, of carcinoma of the colon.

Colvin, Walter Graham ⊕ Grand Rapids, Mich.; Western University Faculty of Medicine, London, Ontario, Canada, 1921; member of the National Gastroenterological Association; served during World War II; affiliated with Butterworth Hospital, where he died Nov. 3, aged 52, of carcinoma of the liver.

Conley, Willard Thomas ⊕ Los Angeles; Northwestern University Medical School, Chicago, 1913; fellow of the American College of Surgeons; affiliated with Queen of Angels and St. Vincent's hospitals; died Nov. 15, aged 67, of terminal pneumonia.

⊕ Indicates Member of the American Medical Association.

Cook, Hugh Francis ⊕ Newark, N. J.; College of Physicians and Surgeons, Baltimore, 1896; served during World War I; fellow of the American College of Surgeons; visiting surgeon, Presbyterian Hospital; consulting surgeon, Newark City Hospital; on the courtesy staff, St. Mary's Hospital, Orange; Newark Beth Israel and St. Michael's hospitals; and Hospital for Women and Children; died Nov. 14, aged 80.

Davidson, John E. S., Charlotte, N. C.; licensed in North Carolina in 1898; for many years surgeon for the city police department; on the board of directors of the state hospitals in Morganton, Raleigh, and Goldsboro; died Nov. 19, aged 82, of hypertensive cardiovascular disease.

Davis, Elias L. ⊕ Peoria, Ill.; Barnes Medical College, St. Louis, 1896; died in St. Francis Hospital Nov. 9, aged 84, of myocardial infarction.

DeHoney, Franklin Rhodes, Kansas City, Mo.; St. Louis College of Physicians and Surgeons, 1904; at one time government physician on an Indian reservation near Holdenville, Okla.; died in the General Hospital Nov. 21, aged 83, of injuries received when struck by an automobile.

Dickason, Francis M. ⊕ Bluffton, Ind.; Eclectic Medical Institute, Cincinnati, 1899; died in the Veterans Administration Hospital, Fort Wayne, Nov. 11, aged 83.

Dickson, James Alexander ⊕ St. Louis; St. Louis Medical College, 1881; served on the staff of St. Luke's Hospital; died Nov. 27, aged 92, of myocarditis.

Dimock, Asa Redmond ⊕ Vista, Calif.; Bellevue Hospital Medical College, New York, 1892; member of the Medical Society of the State of New York; served during World War I; died in the U. S. Naval Hospital, San Diego, Nov. 7, aged 82, of cerebral hemorrhage and arteriosclerosis.

Dwinell, Stanley Franklin ⊕ Bradford, Vt.; University of Vermont College of Medicine, Burlington, 1943; member of the New Hampshire Medical Society; served during World War II; certified by the National Board of Medical Examiners; on the staff of Cottage Hospital, Woodsville, N. H.; died Dec. 11, aged 32, of injuries received when his automobile was struck by a train.

Ferry, James Adolph ⊕ Birmingham, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1932; fellow of the American College of Surgeons; past president of the Birmingham Surgical Society; affiliated with St. Vincent's, Baptist, Jefferson, and Hillman hospitals; died Nov. 14, aged 46.

Fiebiger, George J., Waterloo, Wis.; Northwestern University Medical School, Chicago, 1899; member of the school board; affiliated with St. Mary's Hospital, Watertown, where he died Nov. 15, aged 78, of a heart attack.

Foster, James Byron ⊕ Webster, N. Y.; University of Buffalo School of Medicine, 1907; served overseas during World War I; examining physician for the board of education of Webster and the Holy Trinity parochial school; town and village health officer; examining physician for the welfare department of Monroe County; medical examiner for Selective Service Board number 75; on the staff of the Park Avenue Hospital in Rochester, N. Y., where he died Nov. 30, aged 68, of carcinoma of the rectum.

Fox, Clarence P., Morrill, Neb.; Chicago Homeopathic Medical College, 1902; killed in an automobile accident Nov. 10, aged 77.

Foye, Amelia Frances ⊕ Washington, D. C.; Howard University College of Medicine, Washington, 1898; on the courtesy staffs of Garfield Memorial and Sibley Memorial hospitals; died Nov. 10, aged 81.

Frear, Jane North, Perry, Ohio; University of Buffalo School of Medicine, 1894; died Oct. 1, aged 90, of myocardial infarction.

Garcia, Donaldo Moises ✠ Evanston, Ill.; Northwestern University Medical School, Chicago, 1938; affiliated with Mennonite and St. Joseph's hospitals in Bloomington; died Nov. 24, aged 42, of malignant hypertension.

Gardner, Willetts Walton ✠ Patchogue, N. Y.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1921; past president of the Suffolk County Medical Society; affiliated with Southside Hospital in Bayshore and Mather Memorial Hospital in Port Jefferson; died while vacationing in Monterey, Calif., Oct. 15, aged 60, of coronary disease.

Glenn, Thomas O. ✠ Bradford, Pa.; Eclectic Medical Institute, Cincinnati, 1895; past president of the McKean County Medical Society and the board of education; on the staff of Bradford Hospital; died Nov. 9, aged 83.

Gurian, Sydney Harold, Spadra, Calif.; New York Medical College and Flower Hospital, New York, 1938; certified by the National Board of Medical Examiners; specialist certified by the American Board of Pediatrics; served during World War II; on the staff of Pacific Colony; died Nov. 11, aged 40.

Harris, Albert Edward, Detroit; Detroit College of Medicine, 1913; served in France during World War I; formerly county coroner; surgeon for the Wayne County Probate Court; for many years on the staff of Harper Hospital; affiliated with Grace and Woman's hospitals and the East Side General Hospital, where he died Nov. 24, aged 64.

Harris, Franklin I. ✠ San Francisco; University of California Medical School, San Francisco, 1921; member of the founders group of the American Board of Surgery; fellow of the International College of Surgeons and the American College of Surgeons; affiliated with Mount Zion Hospital; died in Palo Alto (Calif.) Hospital Nov. 13, aged 56, of myocardial infarction.

Hebble, Howard Miller ✠ Moorestown, N. J.; Jefferson Medical College of Philadelphia, 1934; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; served during World War II; affiliated with Zurbrugg Memorial Hospital in Riverside, Burlington County Hospital in Mount Holly, and Children's Hospital and Pennsylvania Hospital in Philadelphia, where he died Nov. 21, aged 42, of periarteritis nodosa.

Heinzeroth, George Emerson, Turtle Lake, N. D.; Bennett Medical College, Chicago, 1907; for many years president of the school board; died in St. Alexius Hospital, Bismarck, Nov. 6, aged 79, of a heart attack.

Hinsdale, Ira Alfred ✠ New York City; Cornell University Medical College, New York, 1919; specialist certified by the American Board of Otolaryngology; honorary senior surgeon, New York Eye and Ear Infirmary; died in Sharon (Conn.) Hospital Nov. 23, aged 62, of arteriosclerotic heart disease.

Jaffa, William ✠ Bethlehem, Pa.; Long Island College of Medicine, Brooklyn, 1930; served during World War II; member of the medical staff of the Bethlehem Steel Company; died in St. Luke's Hospital Nov. 15, aged 46, of mesenteric thrombosis.

Johnson, N. La Doit, Camarillo, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1897; College of Medicine and Surgery (Physio-Medical), Chicago, 1905; died Nov. 6, aged 83, of cerebral arteriosclerosis.

Kanouse, George Edward, Summit, N. J.; Cornell University Medical College, New York, 1909; for many years associate medical director of the Prudential Insurance Company in Newark; died Nov. 13, aged 70, of cerebral thrombosis.

Kutas, Walter John ✠ Chicago; Chicago Medical School, 1932; affiliated with Evangelical and Southtown hospitals; died in Columbus Hospital, Nov. 30, aged 48, of duodenal ulcer.

Leaming, Harry A. ✠ Joplin, Mo.; University Medical College of Kansas City, Mo., 1905; affiliated with St. John's and Freeman Methodist hospitals; past president of the Jasper County Medical Society; died Oct. 19, aged 71, of myocardial infarction.

Leighton, William Elston ✠ St. Louis; Harvard Medical School, Boston, 1900; professor of surgery at St. Louis University School of Medicine; past president of St. Louis Medical Society; member of the founders group of the American Board of Surgery; an Associate Fellow of the American Medical Association; member of the Western Surgical Association; affiliated with Barnard Free Skin and Cancer Hospital, St. Marys Group of Hospitals, and DePaul and Missouri Pacific hospitals; died Nov. 9, aged 80, of coronary occlusion.

McGreer, Charles Franklyn ✠ Martinez, Calif.; Stanford University School of Medicine, San Francisco, 1942; served during World War II; affiliated with Martinez Community Hospital; died Nov. 14, aged 45, of coronary thrombosis.

McIntosh, Roscoe Lyle ✠ Madison, Wis.; Washington University School of Medicine, St. Louis, 1921; associate professor of dermatology, Marquette University School of Medicine, Milwaukee; member of the American Academy of Dermatology and Syphilology; served on the staff of the Wisconsin General Hospital; died Nov. 18, aged 61, of coronary occlusion.

Malachowski, Anthony Edward, Bensonville, Ill.; Illinois Medical College, Chicago, 1904; served on the staff of St. Elizabeth Hospital in Chicago; died in Belmont Hospital, Chicago, Dec. 7, aged 79, of coronary occlusion.

Markson, Simpson Madison ✠ Milwaukee; McGill University Faculty of Medicine, Montreal, Canada, 1904; clinical professor emeritus of dermatology at Marquette University School of Medicine; member of the American Academy of Dermatology and Syphilology; affiliated with Columbia, Mount Sinai, Children's, and St. Joseph's hospitals; died Nov. 17, aged 69, of acute myocardial infarction.

Marrin, Charles Ainsworth Clement ✠ Santa Monica, Calif.; Columbia University College of Physicians and Surgeons, New York, 1934; specialist certified by the American Board of Ophthalmology; certified by the National Board of Medical Examiners; fellow of the American College of Surgeons; served during World War II; formerly affiliated with Lenox Hill and Lincoln hospitals in New York and New Rochelle (N. Y.) Hospital; affiliated with Santa Monica and St. John's hospitals; died Dec. 5, aged 42.

Martin, William Harper, Highland Park, Mich.; Starling Medical College, Columbus, Ohio, 1897; past president of the Michigan Pharmaceutical Association and the Ohio State University Medical Alumni Association; died in Highland Park General Hospital Nov. 21, aged 81, of burns received when he fell asleep while smoking.

Matthews, Oscar Homer ✠ Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1906; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; affiliated with Georgia Baptist and Piedmont hospitals; died Nov. 23, aged 74, of cerebral thrombosis.

Merrick, John Newton ✠ Major, U. S. Army, retired, Alliance, Ohio; Ohio Medical University, Columbus, 1897; veteran of the Spanish-American War and World War I; died in the City Hospital Nov. 22, aged 83.

Mokler, Victor Albert ✠ Los Angeles; Creighton University School of Medicine, Omaha, 1915; for many years affiliated with Methodist Hospital, where he died Nov. 2, aged 60, of coronary disease.

Morehead, Marvin Basile, San Jose, Calif.; University of Louisville (Ky.) School of Medicine, 1936; served during World War II; affiliated with O'Connor and San Jose hospitals; died near Gustine Nov. 23, aged 44, of coronary occlusion.

Mount, Albert ✠ West Linn, Ore.; University of Oregon Medical School, Portland, 1911; formerly president and vice-president of the state board of health; served on the staffs of the Oregon City and Hutchinson hospitals in Oregon City; died in Good Samaritan Hospital, Portland, Nov. 22, aged 68, of coronary thrombosis.

Muller, Joseph Henry ✠ Newark, N. J.; New York Homeopathic Medical College and Hospital, New York, 1901; died in East Orange (N. J.) General Hospital Nov. 22, aged 75.

GOVERNMENT SERVICES

NAVY

The USS Consolation.—Last Dec. 21 was the first anniversary of the first helicopter landing on a hospital ship—the USS Consolation. Since then 512 helicopter landings have been made on the flight deck of this ship, bringing aboard 654 patients for treatment. The Consolation carries a staff of 27 physicians, 5 Medical Service Corps officers, 3 dentists, 26 nurses, and 201 hospital corpsmen. Helicopter landings are now routine for the Consolation. A record 62 landings were made recently in one day. In command of the Consolation's hospital is Capt. James R. Sayers, Medical Corps, of Palatka, Fla. The Consolation has handled more than 17,000 patients, with another 21,250 treated as outpatients. In addition to 786 beds, the completely air-conditioned ship has three modern, operating rooms.

The helicopter landing of last December was not the only first for the Consolation. Among other records set were: first hospital ship in the Korean action, first to have a woman medical officer on her staff, first to return battle casualties to the United States from Korea, first to use an electroencephalographic machine, first to install a flight deck, and first to maintain a blood bank. One other hospital ship, the Repose, has been equipped to land helicopters, and another, the Haven, is being similarly fitted. A pictorial record of the first helicopter landing on the Navy hospital ship Consolation, off the coast of Korea above the 38th parallel, was presented to Vice Adm. Joel T. Boone, MC, U. S. Navy, retired, Dec. 18. Admiral Boone, now medical director of the Veterans Administration, made the first recommendation for installation of landing platforms for helicopters on Navy hospital ships. Rear Adm. Lamont Pugh, Surgeon General, made the presentation. The materialization of Admiral Boone's recommendation has been one of the major factors in saving the lives of hundreds of battle casualties of the United Nations forces in Korea, Admiral Pugh said.

AIR FORCE

Graduation at School of Aviation Medicine.—Seventy-seven student medical officers were awarded diplomas Dec. 20 at the Air Force School of Aviation Medicine, Randolph Field, Texas. This brings to 422 the number of physicians trained by the Air Force medical institution in 1952. Five medical officers of foreign air forces were in the group. D. Bailey Calvin, professor of biological chemistry and dean of students at the University of Texas School of Medicine in Galveston, addressed the graduates. Brig. Gen. Otis O. Benson Jr., commandant of the school, presented flight surgeons' wings to the foreign students. Only two members of the class are rated pilots as well as physicians. One is Captain Sandorud, who flew with the Royal Air Force during World War II. The other is Capt. John P. McCann of Flint, Mich., a war-time flyer in the European theater.

Consultants Meet in San Antonio.—Thirty-four consultants to the Air Force Surgeon General met in San Antonio Dec. 11 for a two day meeting at the Randolph Field headquarters of the School of Aviation Medicine to consider medical problems of flying and questions of dietetics, dependents' care, research, and medical administration. Among the visitors were Dr. Elmer L. Henderson of Louisville, Ky., a Past President of the American Medical Association; a dozen Air Force generals, headed by Major Gen. Harry G. Armstrong, Surgeon General; Dr. Margaret A. Ohlson of Michigan State College; Prof. Ruth B. Freeman of Johns Hopkins University, Baltimore; Drs. James H. Allen and Conrad G. Collins of Tulane University, New Orleans; Drs. Donald A. Covalt of Bellevue Medical Center, C. G. de Gutierrez-Mahoney of St. Vincent's Hospital, Charles E. Kossmann of New York University, and Brittain F. Payne, all from New York City; Dr. Donald W. Hastings, University of Minnesota; Drs. Kermit F. Knudtzon and Gilbert H. Marquardt of Chicago; Drs. Walter R. Krill, Ohio State University, and Richard L. Meiling of Columbus, Ohio; Drs. J. Vernon Luck, Los Angeles; Walter B. Martin, Norfolk, Va.; Hayden C. Nicholson, University of Arkansas; Donald M. Pillsbury, University of Pennsylvania; Irl C. Schoonover (Ph.D.), Kensington, Md.; Hugh Smith, Memphis, Tenn.; James J. Smith, Marquette University; Harold A. Sofield, Oak Park, Ill.; Ernest L. Stebbins, Johns Hopkins University; James P. Tollman, University of Nebraska; Jessie Wright, Pittsburgh; and Shields Warren, medical director of the Atomic Energy Commission.

Council Inspects Medical Facilities.—Four civilian members of the Armed Forces Medical Policy Council, Dr. Melvin A. Casberg, St. Louis; James P. Hollers, DDS, San Antonio, Texas; Dr. Isidor S. Ravdin, Philadelphia; and Dr. Alfred R. Shands, Wilmington, Del.; and the Surgeons General of the Army, Navy, and Air Force, with their advisors, arrived in San Antonio, Dec. 14, for an inspection of medical facilities in the area. The council normally holds its meetings in Washington. This year it was decided to meet in San Antonio, so the members could familiarize themselves with medical installations and equipment in this vicinity. In addition, the council was briefed on the projected 30 million dollar aeromedical center at Brooks Air Force Base.

DEPARTMENT OF DEFENSE

Thirty-Eighth Parallel Medical Society.—One hundred and eighteen physicians and nurses from 10 nations attended the 38th Parallel Medical Society meeting at I Corps Headquarters in Korea, Dec. 7, 1952. Speakers on the professional program were Major Jack B. Lowrey, chief, medical service, 121st Evacuation Hospital, who discussed "The Use and Abuse of Antibiotics"; Dr. Donald C. Overy, MC, U. S. Navy, who presented a paper on "Blast Injuries"; and Lt. Col. William Crosby, MC, chief, department of hematology, Walter Reed Army Hospital, Washington, D. C., who lectured on "The Use of Blood and Blood Substitutes." Col. Rollin L. Bauchspies, MC, East Mauch Chunk, Pa., I Corps surgeon and president of the society, presided over the discussion period, which followed the formal presentations. Ranking representatives from these nations were: the United States, Brig. Gen. L. Holmes Ginn Jr., 8th Army surgeon; Denmark, Col. Chresten Faaup, Sortedam Dossering 99, Copenhagen; Canada, Capt. John S. Neilson; New Zealand, Capt. A. Cull; Italy, Major Pennacchi Fabio; Norway, Major Ove Maske; Korea, Lee Kip Sup; India, Capt. T. K. Moitra; United Kingdom, Capt. H. B. Russell, Manchester, England; and Belgium, Major Edgani Dewaelheyns, Brussels. The 38th Parallel Medical Society was organized in October, 1951, and now has 470 official members.

Name Chairman of Medical Panel.—Dr. Richard A. Kern of Philadelphia has been named chairman of the panel on shipboard and submarine medicine of the Committee on Medical Sciences, Department of Defense Research and Development Board, succeeding Dr. Eugene F. DuBois of Cornell University Medical College who will continue to serve as a consultant to the panel. Dr. Kern has been head of the department of medicine at Temple University School of Medicine. He is editor of the *American Journal of Medical Science*, chairman of the Committee on Naval Medical Research of the National Research Council, and chairman of the medical military symposium for the Armed Forces held annually at the Naval Hospital in Philadelphia. He served in the Navy Medical Corps during World War I, and during World War II he was on active duty in the South Pacific. He has been a consultant to the Surgeon General of the Army since 1942 and to the Surgeon General of the Navy since 1949. From 1946 to 1947, he was chief of the Division of General Medicine of the Veterans Administration.

FOREIGN LETTERS

ARGENTINA

International Congress of Hematology.—The fourth International Congress of Hematology was held in Mar del Plata (province of Buenos Aires, Argentina) from Sept. 21 to 27. Before the meetings, many lectures were given in Buenos Aires at the National Academy of Medicine by renowned foreign specialists. On Sept. 11 the speakers were W. Seegers, on studies using purified prothrombin and thrombin; J. B. Graham, on antihemophilic factor studied in dogs with hemophilia; and P. A. Owren, on the role of proaccelerin-accelerin and proconvertin-convertin in blood coagulation. Other lectures were given by the French professors Paul Chevallier and J. Bernard and the Italian Di Guglielmo. During the ensuing days there were many informal discussions. On Sept. 20, in a symposium on hemophilia, P. A. Owren, W. Seegers, L. Tocantins, A. Baserga, A. Pavlowsky, and P. de Nicola were among the speakers who gave a summary of their work.

On Sunday, Sept. 21, the congress meetings began at the Hotel Provincial of Mar del Plata. During the meetings each member had a telephone that permitted him to hear the communications translated into Spanish, English, or French, or spoken directly by the speaker. More than 600 members from 23 countries attended. The organization was excellent in every detail. The first of the principal subjects was the neuroendocrine regulation of hematopoïesis and hemostasis by M. R. Castex and B. A. Houssay (Argentina), W. Dameshek (United States), and Moeschlin (Switzerland). The subject for the second day was histochemistry and ultracellular structure of blood, by De Robertis (Uruguay), O. P. Jones (United States), B. Thorel (Sweden), and I. Gonzalez Guzman (Mexico). An unusual theory of blood origin was presented by S. H. Wajda, who believes that the erythrocytes are produced by fragmentation of muscle fibers and are destroyed in the bone marrow. On the following days the meetings were on leukemia, the action of radiation, and polycythemias. The last subject was discussed by A. Hurtado, G. Di Guglielmo, H. Chiodi, and I. Gonzalez Guzman. Professor Amano, from Japan, found that the incidence of leukemia is 10 times greater in the whole city of Hiroshima and 20 times greater in the bombed part of this city than in the rest of the Japanese population. Dr. Glass (New York) found that the intrinsic antianemic gastric principle is mucin or is contained in the gastric mucin. Protective substances against the lethal action of roentgen rays are produced by the nonirradiated spleen (L. Jacobson, Chicago) or bone marrow (Lorenz, the National Institute of Health). After five to six weeks of cortisone treatment, locally inhibited carcinomas in mice metastasized; this did not occur in the untreated controls (Gassic, Chile). The last meeting, Sept. 27, was on hemolytic diseases, immunology and treatment, with discussion by Silva Lacaz (São Paulo), E. Witebsky (United States), and R. R. Race (England). There were exhibitions of photographs, charts, microscopic preparations, and lantern slides and films. Remarkable films of living white blood cells obtained by phase microscope were shown by Dr. Bessis (Paris). Every evening there were panel discussions on the questions presented to a group of experts. The fifth International Congress of Hematology will be held in Paris in 1954 and the sixth in Boston, in 1956.

Discontinuation of Entrance Examinations in Universities.—The National University Council decided to discontinue all selection by entrance examination in the universities. This year, about 4,000 students are registered in the first course of the medical school of Buenos Aires, and it is possible that this number will be increased next year. It was stated that the entrance examinations in the high school controlled by the University of Buenos Aires were discontinued because only 3.5% of the students are children of laborers and that the largest number are children of middle class families. It is hoped that from now on the proportion will be reversed.

The items in these letters are contributed by regular correspondents in the various foreign countries.

LONDON

Varicose Veins.—A. Johnston Abraham, a surgeon working at St. Andrew's Hospital, Billericay, Essex, describes in the *British Medical Journal*, Aug. 2, 1952, a new operative method of causing thrombosis in varicose veins. The method described has been the subject of detailed clinical study checked by histological investigations. Briefly, the method consists in leaving at operation a length of silk ligature within the lumen of the vein. Evidence is produced to show that a firm, nonbulky clot is thereby obtained, the thrombus organizing to produce complete obliteration over any desired length of vein. No ill effects have been observed so far. The method of introducing the silk ligature is quite simple and is combined in other respects with orthodox operative procedure. The skin, having been previously marked at the site of visible or palpable tributaries, is carefully sterilized. Through the usual oblique inguinal incision, a saphenofemoral ligation is performed, with ligation of all tributaries. Before division of the main vein and excision of a portion, a narrow tape is passed around the vein and handed to an assistant. The vein is then incised, and the smallest head of a Babcock vein-stripper is inserted into the lumen. The vein-stripper is then passed gently downwards until its head is felt in the region of the knee. At the same time the assistant crosses over the two ends of the tapes so as to prevent hemorrhage from the vein, which otherwise can be fairly considerable. A longitudinal incision is then made over the head of the vein-stripper so as to expose a reasonable length of vein, in order to identify and ligate any tributaries at the knee. The head of the stripper is identified inside the vein, and another tape passed around the vessel distal to it. Through an incision in the vein wall the stripper head is extruded and attached to a long silk ligature of No. 3 twisted silk, prepared by soaking for 30 minutes in 50,000 units of penicillin solution. The thread is touched only with forceps, in order to avoid accidental contamination, and is not allowed to touch the skin at any point. Its end is knotted around the stripper just behind the head, which is then withdrawn toward the groin, carrying the length of thread with it into the lumen of the vein. It is secured by ligating the vein around it above and below, and the upper end is detached from the stripper. A portion of vein between this and the flush ligation is excised in the groin, and the skin wounds are sutured. The process is repeated with the remainder of the vein below the knee. It is better to enter this part of the vessel at the ankle, as the head of the vein-stripper will not catch onto the remnants of any valves when it is passing in the direction of the blood flow. This consideration does not apply to the vein above the knee, because the caliber there is much greater compared with the diameter of the vein-stripper head, and valve remnants can always be negotiated by gentle maneuvering. Extreme tortuosity of the vein is likely to cause difficulty, and a flexible stripper with a smaller head would be a great advantage in use.

Clinical impressions of the effects of the operation have been checked by microscopic examination of repeated vein biopsies. After incising the skin a layer of edematous subcutaneous fat was encountered. Lying on this was a somewhat enlarged, rubbery vein, opaque white in color and rigid to the touch. On dividing the vein to remove the biopsy specimen, no bleeding from either end was noted. On inspecting the cut surface, about two-thirds of the thickness was seen to be composed of firm white tissue, representing gross fibrous thickening of the original vein wall. The lumen was occupied by a small, dark-colored thrombus and by the silk ligature, which was completely unchanged. Later sections showed the lumen to be completely occluded, except for the silk.

Raeburn has restated the initiating causes of thrombosis as (*a*) venous stasis, (*b*) disordered metabolism of vascular endothelium, leading possibly to increased adhesiveness, (*c*) intimal trauma, and (*d*) sepsis. Venous stasis would certainly result from a partial occlusion by a foreign body. The presence of aseptic inflammation has been shown by vein biopsy. Intimal damage

may occur from repeated small traumas produced by limb movements with a foreign body in the vein lumen. Some of the criteria, therefore, for the production of venous thrombosis appear to be satisfied.

Hospital Dispute.—An instance has come to light concerning an action of a regional hospital board. The South-West Metropolitan Regional Hospital Board decided to close the Metropolitan Ear, Nose and Throat Hospital and to transfer all its activities to the wing of the Western (Fever) Hospital at Fulham. The surgical staff is strongly opposed to this move on the grounds of the dangers to which their patients would be exposed in a fever hospital. The Metropolitan E. N. T. Hospital, which is the oldest hospital of its kind in the world, has 46 beds; if transferred to the fever hospital it would have 64 beds. The following reasons are given for the transfer by the regional hospital board: 1. The present premises are unsuitable for an ear, nose, and throat hospital. 2. The children are accommodated on the top floor, where the hazards in the event of a fire are great. The staff denies that the present premises are unsuitable. They admit that, in theory, a small hospital unit is more expensive to run than a large one, but they quote an impartial report on the hospital before the war that commented favorably on the economical way in which the hospital was run. The fire hazard to children they dismiss with the statement that since 1950 the children in the hospital have been accommodated on the ground floor.

The distressing feature of this controversy, which has now reached the columns of the national press, is the apparent lack of adequate consultation between the authorities and the members of the hospital staff. The regional hospital board claims that there has been adequate consultation, but the staff points out that it has never been consulted on the fundamental point of whether or not the hospital should be transferred; all that they were consulted about was the design of the new building. They quote from a letter of November, 1951, to the regional board, in which it is stated that the "Medical Staff Committee . . . has repeatedly expressed its regret that in this whole discussion . . . the Regional Hospital Board has constantly refused to listen to its views." This is not the first instance of this sort of thing since the inauguration of the National Health Service, and it is difficult to believe that matters such as this cannot be settled by discussions between the two parties. On the available evidence there can be little doubt that the staff of the hospital has legitimate grounds for complaint at the manner in which they have been treated.

Dickens' Doctors.—"Dickens' Doctors" was the title chosen by Mr. Bernard Darwin, the distinguished writer, for the Lloyd-Roberts lecture that he delivered recently at the Royal Society of Medicine. Charles Dickens must have liked physicians, because none of those he created are such rogues and scoundrels as are some of the lawyers he depicts. Merely to list them is to demonstrate their number and variety. Perhaps the most disreputable of the group is Mr. Jobling, M.R.C.S., who examined patients for the Anglo-Bengalee Insurance Company in "Martin Chuzzlewit." At the other extreme is Allan Woodcourt in "Bleak House," the one physician that Dickens made a hero and the one that is dullest of the lot because he had nothing that one could laugh at. Dickens excelled in bringing out a streak of absurdity in a person or an institution. Only two of his physicians were knighted: Sir Tumley Snuffin and Sir Parker Peps. Others included Mr. Chillip, who preferred darkness and draughts to the formidable company of Miss Trotwood when David Copperfield was on the way; Dr. Lumbey who attended Mrs. Kenwig's confinement in "Nicholas Nickleby"; Dr. Slammer (the original of whom was the physician who married Miss Barrow, Dickens' aunt); and Dr. Payne in "Pickwick Papers"; not to mention the unqualified Mr. Alfred Jingle, who carried a stomach pump about with him in his portmanteau.

Mr. Darwin, however, put Bob Sawyer at the top of the list as the most fascinating of Dickens' physicians, one who well deserved G. K. Chesterton's description of a "great creature." Some of his activities might be described as infamous in a professional sense, e. g., his habit of sending his boy around to leave bottles of medicine at the wrong houses in Bristol, and his habit of getting himself called out of church as though to an urgent case. On the other hand, he was willing to help others, and his advice was sometimes sound, as when he recommended hot punch to Mr. Pickwick. Some of his personal habits have also been criticized: he smoked in the street, he liked his liquor, and he called waiters by their Christian names, but today, as Mr. Darwin pointed out, there are highly respected institutions where members address waitresses by their Christian names. Mr. Darwin's other favorite was Jack Hopkins of Bart's, who told the story of the child who swallowed the necklace and made such a noise with the beads rattling inside him that he had to be muffled in a watchman's coat.

Artificial Insemination.—In a memorandum presented to the Royal Commission on Marriage and Divorce, the Faculty of Advocates of Scotland suggests that legislation is needed to the effect that volunteer artificial insemination of a wife from a stranger without the husband's consent should be deemed adultery. It is also suggested that legislation is required to the effect that when a wife has been impregnated by artificial insemination from her husband, neither he nor she can thereafter have the marriage annulled on the grounds of the husband's impotence.

PARIS

New Method of Massive Culture of Virus in Animals.—Professor Thomas, of the Paris Faculty of Sciences, J. P. Thierry, director of the Central Laboratory of Veterinary Research, and his assistants, Mr. and Mrs. Salomon, have developed a new method of culture for the production of viruses. In 1948, the authors presented a method involving the inoculation of virus into cows' fetuses, which were kept alive in the artificial heart-lung apparatus of Thomas. While output can be satisfactory, the technique is too complicated. In 1951 the author reported a new method resembling that of Fraenkel although much different, the culture of virus on fragments of skin of cows' fetuses being made in the purified and amniotic liquid of cows from which the protein had been removed. One-half liter of culture provides as much virus as does a cow through her aphthae. However, research workers believe that cultures in vitro may produce unpredictable variations of these viruses. The new method was presented by the authors at one of the last meetings of the Academy of Sciences and at a press conference. It consists of a culture in vivo in the receptive animal, the cow, itself, and allows an unlimited production of aphthous viruses. This method provokes, in the receptive animal, a massive development of tissues in which viruses multiply electively, instead of only provoking some reactional mass, as previously otherwise tried by other research workers. Thomas and his associates take these elective tissues aseptically from the fetus or the adult of the same species, pulp and dilute them, and implant this tissue suspension in the receptive animal, under the skin, in the abdominal cavity. It rapidly becomes a large embryoma, the organism reacting by a subcutaneous edema or an enormous ascites. This immense culture of tissues, the predominating epithelial character of which is revealed by histological examination, may, for instance, cover both flanks to a depth of 10 cm. After three days, necessary for the formation of the specific embryoma, the virus is inoculated into the lingual mucosa. The affection spreads with the same rapidity and intensity as in unprepared animals. Then embryoma and serous fluid are removed and furnish a virulent crude material, which may amount to 15 kg. for one cow. Therefore, the yield of an animal is increased by more than 300 times. The virus is specific, pure, not associated with microbes, and virulent; thus, virus A_5 is active in the dilution 10^{-6}, virus O_2 in the dilution 10^{-8}. This method has been applied by Professor Thomas and his associates since May, 1950. It has also been used in two subsequent investigations, one of which took place in Brazil in 1951.

Neurological Complications of Cat Scratch Disease.—Up to now, cat scratch disease has been considered as being habitually benign. Professor R. Debré, L. Van Bogaert, and their associates have undertaken investigations on the neurological complications of this disease and have reported to the National Academy of Medicine the case of a child experiencing pains of the causalgic type with neuritic disturbances; a slight reaction of the cerebro-

spinal fluid revealed the presence of encephalitis. Notwithstanding the serious condition of this child, he recovered completely without sequelae. The authors compare this observation to those of Dépaillat and Condat, Grossiord and associates, and Steven, which are quite similar. This new observation leads to the admission of the possibility in cat scratch disease of encephalitis and of polyneuritic or neuritic complications of the causalgic type.

J. Weill and Mlle. F. Blas reported to the Medical Society of the Paris Hospitals one case of erythema nodosum, coexisting with a family epidemic of cat scratch disease. A 12-year-old girl was admitted to hospital suffering from typical erythema nodosum; a painful ganglion, the size of an olive, was also found in Scarpa's triangle. There was no retrocrural adenopathy and no splenomegaly; temperature was 39 C; cutireaction and intradermal reaction with tuberculin were negative. Intradermal reaction performed with the antigen of benign lymphoreticulosis became strongly positive after three days. The temperature fell within four days, and the erythema nodosum disappeared within 10, but the crural adenopathy persisted and was painful. In this family of four persons, one child remained clinically unaffected, notwithstanding numerous cat scratches and a positive intradermal reaction. The father had a pseudoparotitis and the mother, a supraepitrochlear adenitis. The small cat picked up by this family was healthy, as were others examined in the course of similar epidemics.

B. Duperrat reported the case of a couple with clinical signs of lymphogranuloma venereum (Nicholas-Favre-Durand) disease. The man, 30 years of age, showed on the left groin an enormous bubo and two large ganglions; on the right side he had a large, hard, and very painful ganglion. There was no genital or anal erosion and no urethral discharge. The woman, aged 34, complained of a pain in the left groin; there were hard, palpable lymph nodes bilaterally but no other pathological sign. Repeated specific seroreactions of venereal disease were all negative. Reuilly's intradermal reaction was doubtful, but the reaction with Professor Thiers' (Lyons) antigen was definitively positive.

Preparation of a Dry Antiaphthous Vaccine.—Up to the present, the production of the classical antiaphthous vaccine has been inadequate during epidemics. Also the vaccine is liquid and can be preserved only at low temperature, although it does not endure freezing or desiccation. The latest investigations of Professor Thomas and his associates support the belief that a dry vaccine is possible and that it permits an excellent vaccination, even against virus A_5. Research to perfect a method of large-scale production is in progress.

TURKEY

The National Medical Congress.—The 12th National Medical Congress was held in Istanbul University from Sept. 29 to Oct. 3, 1952. The Turkish Microbiology Congress and the Congress of Turkish Surgery were also in session there. The National Medical Congress was opened by Prof. Ekrem Hayri Üstündag, the minister of health and social assistance. It was attended by more than 500 delegates from all parts of the country. Observers from foreign countries were also present. The congress was accompanied by an exhibition of domestic and foreign pharmaceutical preparations. The main topics of discussion were rheumatism, child health, and isoniazid (isonicotinic acid hydrazide) therapy in tuberculosis. Prof. Arif Ismet Çetingil spoke on the etiology of rheumatism, Prof. Ekrem Sherif Egeli on rheumatism and modern therapy, Prof. Shevket Salih Soysal on health protection of the preschool child, Asst. Prof. Cevad Alpsoy on the physical aspect of such health protection, Prof. Rasim Adasal and Dr. Mukadder Sengir on the mental aspect of the health of the child, and Dr. Baha Arkan on school hygiene. Almost 100 medical and scientific papers were read and discussed at the meetings of the several sections of the congress.

A significant paper was read by Dr. Tevfik Ismail Gökçe, medical director of the 530 bed Istanbul Heybeliada Government Sanatorium, and his associates Dr. Kenan Yildiz and Dr. Hamdi Yilmaz, who reported on the clinical results obtained in the treatment of pulmonary tuberculosis with isoniazid begun in March, 1952. The first report concerning 30 patients was made to the Istanbul Tuberculosis Society. A second report on the clinical results after two months' therapy was presented on the occasion of International Tuberculosis Week in Beirut, Lebanon, June 23, 1952. The report presented at this congress concerned the clinical findings of five months' therapy with isoniazid given to 149 tuberculosis patients of whom 48 were men and 101 were women. Ninety-nine patients were 18 to 30 years old, and 49 patients were 30 to 60 years old; one patient was 12 years old. All patients were given regular clinical, laboratory, and radiological examinations. The following clinical results were obtained in 149 patients given isoniazid over periods from one to four months: of 115 febrile patients the temperature subsided in 87 (70%); of 145 coughing patients coughing decreased or ceased in 107 (79%); and of 132 expectorating patients the amount of sputum decreased in 110 (83%).

At the initiation of the therapy, the sputum of 109 of the 149 patients revealed tuberculosis bacilli by simple methods of examination: in 7 patients by the homogenization method and in 65 according to the scale. At the conclusion of the therapy, 98 patients gave positive bacilli reactions and 18 (15.5%) had negative reactions. Of 101 patients with positive reactions, 62 patients had positive reactions by direct method examination, 33 patients by homogenization method, and 3 patients by culture method. These results show that the number of patients with positive sputum reactions decreased after therapy; of the 109 patients now only 62 had positive reactions, and the number of patients who at the conclusion of the therapy had positive reactions by the Gaffky scale had also decreased—of 66 positive reactions there were now 16. Although the percentage of negative results obtained was not very great, the decrease in the number of bacilli was considerable. Appetite increased in 115 (78%) of 149 patients and was followed by an immediate increase in weight. Roentgenographic evidence showed some improvement in 36 (24%) of 149 patients.

With the exception of one patient who had amyloid degeneration, undesired and toxic reactions indicating discontinuation of the therapy did not occur. Nineteen patients had temporary side-effects, five patients had vertigo, in three reflexes increased, one patient had skin eruptions and itching for three days, one patient had headache, one had slight eosinophilia, the patient who had amylolisis had albuminuria, one patient had a decrease in blood pressure, and one had a rise in blood pressure; hepatic or renal complications were absent in all patients. These biochemical investigations were made by the sanatorium's specialist, Dr. Haydar Aksügür. The clinical results obtained with isoniazid administered for one to five months to 149 pulmonary tuberculosis patients corroborate the following findings of previous reports: the therapy considerably reduced the number of bacilli in the sputum, decreased the temperature and amount of coughing, and increased the appetite and weight. Taking into consideration the patient's condition prior to the administration of the new drug, the effectiveness of isoniazid cannot be underestimated especially when administered to patients with new lesions. The fact that good results were obtained in patients in whom streptomycin resistance had developed is worth consideration. In comparison with other antibacterial drugs (and according to the latest findings) it would appear that it is slightly less effective than streptomycin and almost as effective as *p*-aminosalicylic acid. Another point worth considering was that the average results obtained in patients given one to three months therapy revealed that from the initiation of the therapy to the second month good results were obtained and that henceforth they remained constant and in several patients a relapse occurred. Probably in these patients isoniazid resistance developed. There was noted a decrease of bacilli in the sputum, an increase in appetite and weight, and an improvement in the patient's general condition in the first group of patients given the one month therapy. This was probably the result of the psychological effect of the new wonder drug of which the patients had heard. The patients who had one month therapy showed the expected normal results. In conclusion the author said isoniazid may prove to be a superior antibacterial agent for the control of tuberculosis. The next National Medical Congress will meet in Izmir in 1954. The main subjects are to be etiology, prevention, and modern therapy of allergic disease, and the physician's relation to state and society.

CORRESPONDENCE

VISIT TO JAPAN

To the Editor:—Thanks to the influence of Dr. Hara of Los Angeles, it was my privilege to be in intimate contact for a month with the leading otolaryngologists of the Tokyo-Yokohama area. I took with me to Japan two medical films, one on the fenestration operation by Dr. Howard House of Los Angeles, and one by Dr. Paul Holinger of Chicago on diseases of the larynx. These were shown a number of times at various ear, nose, and throat society meetings and were very much appreciated. I attended a number of their meetings, and at two of them I was asked to speak. The amphitheater was always completely filled. Never have I seen greater enthusiasm and attention at any similar meeting in the United States. No one left his seat until the program was finished.

The Japanese medical men realize better than anyone else that they have been out of contact with western medicine since the beginning of World War II, and they are extremely anxious to learn about the advances made and are looking to the United States for help in this direction. They are well grounded in the fundamentals in all fields, with the exception of anesthesia and allergy; they are, however, handicapped in a number of ways: First, they are governed by a vicious form of socialized medicine. The Japanese health insurance system was established in 1927. The law has been revised 17 times and the rules for its enforcement 20 times during the past 24 years. These changes were made arbitrarily by the government without consent or advice from the medical profession. Under the law, no matter what the standing of a physician may be, he is forced to accept the same remuneration as a physician who has just graduated from medical school. Eighty per cent of the population is covered by national health insurance.

The government agencies that control the medical profession in Japan are the ministers of transportation, agriculture, forestry, finance, labor, and postal services, as well as the minister of public welfare. There is no coordination among these agencies, and therefore doctors are subjected to unnecessary, inconsistent, and uncoordinated directions and supervision by these numerous agencies. The insured are also gradually losing the privilege of personal choice of physician. The insured can only receive such treatment and drugs as prescribed by law. The doctor has no freedom of choice. Many of the modern drugs cannot be used, and both doctor and patient are subject to penalties if they are prescribed.

As far as I could determine, a physician could not earn more than $150 a month for services rendered to the insured, and most physicians receive much less. The professors in the medical schools of Japan receive only $75 a month for their services. I was told that only two otolaryngologists in Tokyo had automobiles, and they had other means of support. Another handicap is the fact that their educational system, like our own, does not teach them to speak foreign languages, although most of the medical men read both English and German. The younger men who are looking forward to coming to the United States to finish their training are trying hard to remedy this difficulty.

Most of the medical students have had financial difficulties while in medical school. Unless some form of scholarship is arranged for them, they will have the same difficulty in coming to the United States for internships and residencies. Even though some of the younger men have served as residents in Japan, they are anxious to come to us to repeat their training. Because of my intimate contact with them, and because I found them to be extremely courteous, kindly, reliable, and anxious to learn, I feel that any young medical man who has been recommended by his professors should be given the opportunity to obtain further training in the United States.

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LOW BACK PAIN DUE TO PANNICULAR HERNIAS

To the Editor:—In the case report entitled "Low Back Pain Due to Pannicular Hernias," by Drs. Ficarra and McLaughlin, which appears in the Nov. 1, 1952, issue of THE JOURNAL, page 855, I read the statement "A review of the literature reveals only two references to herniation of fat through the lumbodorsal fascia that resulted in low back pain." Both of the references noted were English. I would like to point out that the first report in this country was written by Herz and appeared in THE JOURNAL of July 28, 1945. I also published an article "Nodulation or Herniation of Fat as a Cause of Low Back Pain," in *The Annals of Western Medicine and Surgery* (1:15 [March] 1947). This is, I believe, the second report in American literature. A number of other reports have appeared since that time, for example, "Subfascial Fat Abnormalities and Low Back Pain," by R. J. Dittrich, which appeared in *Minnesota Medicine* (35:593 [June] 1950). This presentation includes a rather complete list of references.

It may seem as if I am differing with Drs. Ficarra and McLaughlin, but one can no longer discuss the condition as an unusual cause of low back pain. I think that the entity is now sufficiently understood to be widely recognized, and the diagnosis is not so commonly missed and confused as it was in the past. A hurried review of my records shows that I have presently seen over 50 patients with such cases and have operated on approximately 20.

I should add that surgical removal of the fatty nodule or nodules no longer seems so essential as it once did. The large proportion of these cases will respond to repeated and multiple needling with infiltration of 2% procaine solution. I now reserve surgical removal for the fewer cases in which a fair trial of this procedure does not accomplish cure. I think that a true panniculitis is too rare an entity to be more than briefly considered in the differential diagnosis of the relatively common herniation or nodulation of fatty tissue dorsal to the dorsal layer of the lumbodorsal fascia.

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LASKER AWARD

To the Editor:—My attention has been called to a paragraph in Dr. Arthur M. Master's paper "The Impact of Medical Care Plans on the Medical Profession," in THE JOURNAL, Oct. 25, 1952, page 768, which questions the circumstances of the Lasker Award given by the American Public Health Association to the Health Insurance Plan of Greater New York in 1951.

Dr. Master questions the objectivity of this award and the qualifications of the Committee of the American Public Health Association that chose recipients of the awards. Dr. Master is apparently unfamiliar with the method by which recipients of these awards are chosen. It has for some years been the policy of the association to solicit nominations from the members of the association, among whom are many practicing physicians, and persons or organizations so nominated are reviewed extremely carefully by the Lasker Awards Committee of the association.

The following persons are those who participated in choosing the recipients of the 1951 awards as members of a committee appointed by the executive board of the American Public Health Association: Gaylord W. Anderson, M.D., director, School of Public Health, University of Minnesota; Leona Baumgartner, M.D., assistant commissioner, New York City Department of Health; Sidney Farber, M.D., pathologist, Children's Medical Center, Boston; Donald T. Fraser, M.B., D.P.H., University of Toronto, Ontario; William McD. Hammon, M.D., Professor of Epidemiology, Pittsburgh University; Philip S. Hench, M.D., Mayo Clinic, Rochester, Minn.; T. Ducket Jones, M.D., director, medical research, Helen Hay Whitney Foundation, New York

Hospital, New York; Robert F. Loeb, M.D., Bard Professor of Medicine, College of Physicians and Surgeons, Columbia University, New York; Hugh J. Morgan, M.D., Professor of Medicine, Vanderbilt University, Nashville, Tenn.; Roy J. Morton, C.E., Atomic Energy Commission, Oak Ridge, Tenn.; Cornelius Rhoads, M.D., Memorial Center for Cancer and Allied Diseases, New York; Leonard A. Scheele, M.D., Surgeon General, U. S. Public Health Service, Washington, D. C.; Marion W. Sheahan, R.N., director of programs, National Committee for Improvement of Nursing Service, New York; and C. J. Van Slyke, M.D., director, Heart Institute, Bethesda, Md.

I had the honor of serving as chairman of this committee, and I can testify that the committee reached its decision on the award to the Health Insurance Plan after objectively reviewing factual information submitted by the many members of the association nominating the Health Insurance Plan for the 1951 award. The implication that Mrs. Mary Lasker, an officer in the Lasker Foundation and also an officer in the Health Insurance Plan, influenced the decision is completely without foundation. At no time during my five years of service on the Lasker Awards Committee has Mrs. Lasker or any person in any way connected with the Lasker Foundation attempted in any way to influence the judgment of the committee. The decision of the committee was unanimous, and, in this case, as in all other cases, the decision of the committee was final and not reviewed by any representative of the Lasker Foundation. The fact is that this committee reached its decision on the award to the Health Insurance Plan on what it regarded as the objective facts in the case and, as the citation pointed out: "the American Public Health Association was honored to present the award to the Health Insurance Plan for its courageous pioneering." There is no doubt that these patterns of medical organization and practice have enormous significance for the health services of the future.

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DRY METHOD FOR CONSERVING AND TRANSPORTING CYTOLOGICAL SMEARS

To the Editor:—In a recent article (Use of Polyethylene Glycols in Dry Preservation of Anatomic and Pathologic Specimens, *Lab. Invest.* **1**:378, 1952) it was noted that the polyethylene glycol impregnation technique for preservation of gross anatomic material is also a good method for preserving individual cells. This observation has a practical application. Today, the universal interest in cytology has made it necessary to send slides from remote areas to central laboratories for both staining and reading. These slides must be kept from drying even momentarily during transportation. At present they are kept in the original fixative mixture or covered with glycerine and a clean slide to seal off the smear area and are then packaged for mailing (Cervical Cytology Tests in Cancer Diagnosis: Glycerine Technique for Mailing, *Canad. M. A. J.* **54**:489, 1946).

I have found it both simple and safe to dip the fixed and still wet preparations into melted polyethylene glycol 1540 (carbowax 1540®) for a few minutes and then to suspend them in air until the wax hardens. This coats the slide with a thin protective layer of the wax, which prevents dehydration, simplifies packaging, and insures against breakage during transportation. At the central laboratory the slides are placed directly into tap water to dissolve away the water soluble wax and then are passed at once into the hematoxylin stain. This constitutes an additional advantage, for it eliminates the steps of hydration that generally precede the hematoxylin bath. I have now kept cytological preparations coated by the wax and left exposed in the laboratory for more than six months. When stained according to the Papanicolaou technique the smears show good cellular detail, with no impairment of the staining qualities.

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INTRAVENOUS USE OF CORTISONE

To the Editor:—We have read your editorial "Iatrogenic Adrenal Insufficiency," which appeared in the November 22 issue of THE JOURNAL, page 1222, with a great deal of interest. We appreciate your stand on this matter since it has needed clarification for some time. We wish, however, to call attention to the statement concerning the intravenous use of hydrocortisone and cortisone. Since there is no preparation commercially available designed for this route of administration, we feel that it is entirely possible that, on the basis of this statement, physicians may use the suspension that is now available, which, in the case of cortisone, is designed for intramuscular use only and in the case of hydrocortisone, for intra-articular use only. We feel that it is important that this matter be clarified.

There are preparations for intravenous use under investigation at present, and it is anticipated that this investigation will lead to the availability of a satisfactory preparation in the near future. Furthermore, investigational supplies now on hand, or expected in the near future, are completely allocated to studies now under way. For this reason, preparations for intravenous use of either hormone are virtually unobtainable at this time. We sincerely hope that this can be rectified and assure you that we are doing our utmost to that end.

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ROENTGENOGRAPHY AND BRONCHIAL ASTHMA

To the Editor:—The article "New Roentgenographic Technique in Bronchial Asthma," by Drs. Jiménez Díaz, Albert, Barrantes, F. Lahoz, Salgado, and C. Lahoz, from the University of Madrid, Spain, in THE JOURNAL for Nov. 29, 1952, page 1297, was very interesting to me. The authors described a "new radiological technique" that they had been using during the past two years consisting of "taking two x-ray photographs, one in forced inspiration, the other in expiration. Placing one film on top of the other permits the recording of the expansion of the diaphragm, the ribs, and the clavicle."

Permanent records and measurement of the movement of the thorax have been part of the standard technique at the Vermont Sanatorium since 1934. The method of using two films was discarded in 1936, since it was found to be awkward, expensive, and liable to error owing to the necessity of changing the position of the patient and film unless an automatic film changer is used. The method that has been used since 1936 is that of single film double-exposure. This technique was not new in 1936 when we began to use it. It was described in full detail by Drs. Tu-shan Jung and C. M. Van Allen of the Peiping Union Medical College, Peiping, China, in their paper in the *National Medical Journal of China* (**17**:194 [April] 1931).

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SKIN SENSITIVITY

To the Editor:—It is regrettable that the excellent article "Treatment of Bronchial Asthma," by Leon and Albert Unger, in the Oct. 11 issue of THE JOURNAL, page 562, should contain the following statement: "The initial dosage [of the extract of the allergen] is usually based on the size of the reaction to the skin test." The proper approach is to use an initial dose of a small size as determined by the physician's experience. Even this will in rare instances produce reactions (local, focal, or constitutional) but very seldom of a serious nature. In these cases, of course, the following dose must be reduced in accordance with the size and kind of reaction.

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COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE

"DOCTOR-DRAFT LAW"

The regular fall meeting of the Council on National Emergency Medical Service, which was held in Chicago Nov. 8-9, 1952, was dedicated to a consideration of the "doctor-draft law," its administration, and the need, if any, for extending the law beyond its current expiration date of July 1, 1953.

In an effort to obtain necessary background information, the Council submitted a series of questions to the Surgeons General of the armed forces and the Armed Forces Medical Policy Council. It is believed that the following answers, which have been supplied by the Surgeons General of the Army and the Navy and the Chairman of the Armed Forces Medical Policy Council, will be of general interest.

C. JOSEPH STETLER, *Secretary.*

QUESTIONS AND ANSWERS—DEPARTMENT OF DEFENSE

QUESTION 1: In your experience in connection with the "doctor-draft law," what inequities have come to your attention which would suggest desirable changes in the event of future legislation of this type?

ANSWER: The greatest inequity of the present law as evidenced by the volume and general distribution of complaints received is in calling priority 2 physicians to duty before calling priority 3 physicians. Inasmuch as this inequity cannot be corrected prior to the time priority 2's will be called to duty, no further comment is offered. Other inequities that can be corrected include: *a.* Provision for credit for service with one of the allied forces during World War II for classification purposes. *b.* Definition of "active duty" in the law for classification purposes. In this respect credit for military postgraduate training for classification purposes should be denied priority 3's and 4's. *c.* A definite period of reserve obligation should be provided for civilians who accept a commission in lieu of induction in an enlisted status. It is considered, except for those individuals who otherwise would have a reserve obligation, that reserve appointments should terminate at the completion of tours of duty. *d.* Deferrals for faculty members and residents should be specifically mentioned in the law.

QUESTION 2: What legislative action and what administrative action would be required to utilize those Medical Corps officers who have retired for age, disability, or because they have been "passed over" for promotional purposes and have retired?

ANSWER: No legislative action would be necessary to recall retired Medical Corps officers to duty. At the present time the recall of retired officers is a matter of policy determined by the military departments. There are a total of 77 retired regular Medical Corps officers of the Army under the age of 65 who were retired for causes other than physical disability, of which 23 are on duty. The Navy has 56 retired regular Medical Corps officers under the age of 64 who retired for causes other than physical disability. Of these none are known to be on duty. Due to the short period the Air Force has been an independent department, there are but few retired Medical Corps officers.

QUESTION 3: What steps have been taken to develop outpatient departments in the Army and Navy for the care of military personnel not in need of bed-nurse care? (Convalescing quarters, etc.)

ANSWER: The Department of Defense published a directive, subject: "Utilization of Registered Nurses," during July, 1951, which details policies regarding bed-nurse care. Two of the policies relating to the question are as follows: *a.* "The patients in military hospitals who need professional care can be concentrated in more "active" wards, and that a similar concentration of nurses be effected." *b.* "Ward and dispensary nurses be relieved of their routine housekeeping, clerical, supply, food service, and other non-professional functions."

In general these policies have been implemented by the use of outpatient departments for patients not in need of bed-nurse care; the establishment of convalescent wards to which patients requiring a minimum of bed-nurse care are transferred; the transfer to receiving stations by the Navy of patients convalescing and awaiting orders; and by the use of sick leave in the Army.

The Army is conducting a test at Fort Belvoir in an effort to develop a standard means of affording medical care on a nonhospital status. This test provides for the consolidation of outpatient and sick-call services within the post whereby individuals may be furnished the services of all medical facilities necessary for the determination and evaluation of their physical condition prior to entry into the hospital as a patient. Nonhospital housing is provided when necessary for individuals undergoing diagnostic procedures. This test has not proceeded to the point that evaluation of results is possible.

QUESTION 4: Assuming troop strength and the ratio of physicians to troop strength remains static, what is the estimated shortage of medical officers over and above those available under the basic Selective Service Act for the years ending June 30, 1953, 1954, 1955, 1956, 1957, 1958, 1959, and 1960?

ANSWER: The estimated shortage of medical officers for each fiscal year to 1960 is given in the following tabulation. These figures are based on the assumption that 70% of male nonveterans who completed one year of internship will enter the military service immediately thereafter.

1953	6,246
1954	3,400
1955	5,400
1956	1,900
1957	2,400
1958	0
1959	0
1960	0

QUESTION 5: (*a*) What was the actual bed occupancy by military personnel in service hospitals from January, 1950, to September, 1952 (less sick-leave, awaiting survey, awaiting duty orders, cured but retained as help, etc.)? (*b*) What are the figures on actual bed occupancy by nonmilitary personnel?

ANSWER: The attached charts show the totals of military and nonmilitary patients occupying beds in fixed medical treatment facilities (hospitals and infirmaries) in the continental United States, January, 1950-August, 1952, and of the nonmilitary personnel, the dependents occupying beds in fixed medical treatment facilities, world-wide, from July, 1951, to June, 1952. These figures include any military personnel classified as patients who are on sick leave, awaiting survey, awaiting duty orders or cured but retained as help, etc. There are no regulations of the military departments which permit the retention of cured to be retained as help. At present, reporting procedures to the Office of the Secretary of Defense do not permit exclusion from totals of the other types of patients mentioned.

*Number of Military and Nonmilitary Personnel Occupying Beds in Fixed Medical Treatment Facilities**

Year, Mo.	Military and Nonmilitary Personnel Occupying Beds, Total	Military Personnel				Nonmilitary Personnel, Total
		Total	Army	Navy	Air Force	
1950						
Jan.	33,597	22,919	9,268	8,294	5,357	10,678
Feb.	34,444	23,796	9,542	8,961	5,293	10,648
March	31,859	22,441	9,031	8,480	4,930	9,418
April	29,643	21,189	8,500	7,977	4,712	8,454
May	28,343	20,275	8,037	7,644	4,594	8,068
June	27,507	19,735	7,721	7,605	4,409	7,772
July	27,725	19,961	7,627	7,740	4,594	7,764
Aug.	28,759	20,924	8,027	8,001	4,896	7,835
Sept.	29,873	22,896	9,726	8,437	4,733	6,977
Oct.	33,857	27,871	14,112	8,855	4,904	5,986
Nov.	36,743	30,927	16,308	9,685	4,934	5,816
Dec.	37,788	31,825	16,798	10,330	4,697	5,963

1951						
Jan.	49,515	42,903	21,812	13,642	7,449	6,612
Feb.	56,422	49,352	25,613	15,545	8,194	7,070
March	55,758	48,686	26,134	15,058	7,494	7,072
April	56,164	48,831	26,505	14,787	7,539	7,333
May	55,412	48,137	26,067	14,585	7,485	7,275
June	55,016	47,529	25,551	14,546	7,432	7,487
July	56,747	48,907	25,986	15,149	7,772	7,840
Aug.	57,584	49,446	26,076	15,201	8,169	8,138
Sept.	57,071	49,017	25,547	15,138	8,332	8,054
Oct.	57,251	49,098	25,741	14,735	8,622	8,153
Nov.	57,237	49,054	25,556	14,674	8,824	8,183
Dec.	51,379	43,605	22,200	13,537	7,868	7,774
1952						
Jan.	55,001	46,678	22,831	15,237	8,610	8,323
Feb.	63,787	55,017	27,266	17,909	9,842	8,770
March	62,678	53,960	26,606	17,580	9,774	8,718
April	58,378	49,734	24,378	16,138	9,218	8,644
May	56,686	48,097	23,397	15,559	9,141	8,589
June	54,627	46,059	22,352	15,168	8,539	8,568
July	52,880	43,996	21,058	14,541	8,397	8,884
Aug.	54,357	45,198	22,731	14,205	8,262	9,159

* Source: Progress Reports and Statistics, Office of Secretary of Defense, Oct. 8, 1952.

Substantiation of the special pay has been prepared by the Surgeon General of the Army, who will appear before the committee. It is believed that the special pay has been a factor to some extent in attracting young physicians to a military career and in retaining others already in service who otherwise would have separated.

b. No effort has been made to attract volunteers to the service since the Korean incident by increased rank other than the provisions made during October, 1950, that permit the commissioning of civilian physicians in grades based upon length of professional service, exclusive of internship. Physicians with more than 3, but less than 10 years' professional experience are commissioned as captains or equivalent rank in the Navy. Those with 10 or more years of experience, but less than 17 are commissioned as majors or equivalent rank in the Navy; and with 17 or more years' experience as lieutenant colonels or equivalent rank in the Navy. This has not increased the number of volunteers.

c. Certain practice privileges have been permitted in regulations, particularly by the Army in isolated areas not covered by civilian physicians. In general, the extension of this privilege is not considered advisable both from military and civilian-relations viewpoints.

d. Predetermined assignments as to type of duty, place of duty, and for fixed periods have not been offered routinely by the military departments. It is a policy in the three military departments to utilize medical officers in a capacity best suited by their training. Through classification procedures and personnel interviews medical officers entering the service receive consideration as to type of duty. Consideration is given in special cases to place of duty, but the necessity to assign officers to more hazardous or less attractive assignments from which relief by rotation must be furnished precludes promising individuals fixed assignments in preferable locations.

e. No action has been taken by Congress to provide relief from income tax for military personnel. During the last Congress a pay raise was granted to compensate for increased costs of living. At that time general relief from income tax for the military was considered by the Congress but not acted upon. Partial relief from income tax has been provided for those assigned in Korea.

*Beds Occupied by Military Dependents, World-Wide, Fiscal Year 1952**

Year, Mo.	Total				Continental U. S.				Overseas			
	Total	Army	Navy-Marine	AF	Total	Army	Navy-Marine	AF	Total	Army	Navy-Marine	AF
1951												
July	5,684	2,314	1,754	1,616	5,009	1,901	1,658	1,450	675	413	96	166
Aug.	6,085	2,471	1,824	1,790	5,291	2,016	1,715	1,560	794	455	109	230
Sept.	6,167	2,520	1,777	1,870	5,364	2,051	1,665	1,648	803	469	112	222
Oct.	6,267	2,573	1,768	1,926	5,475	2,106	1,660	1,709	792	467	108	217
Nov.	6,294	2,542	1,763	1,989	5,491	2,078	1,651	1,762	803	464	112	227
Dec.	5,917	2,387	1,662	1,868	5,155	1,946	1,555	1,654	762	441	107	214
1952												
Jan.	6,529	2,651	1,821	2,057	5,604	2,095	1,706	1,803	925	556	115	254
Feb.	6,949	2,804	1,912	2,233	5,989	2,258	1,777	1,954	960	546	135	279
March	6,968	2,858	1,817	2,293	6,035	2,326	1,695	2,014	933	532	122	279
April	6,872	2,786	1,796	2,290	5,975	2,281	1,673	2,021	897	505	123	269
May	6,852	2,815	1,786	2,251	5,929	2,298	1,645	1,986	923	517	141	265
June	6,849	2,804	1,779	2,266	5,955	2,320	1,637	1,998	894	484	142	268

* Source: Progress Reports and Statistics, Office of Secretary of Defense, Oct. 15, 1952.

QUESTION 6: What is the estimated number of physician man-hours devoted to the care of military and nonmilitary patients broken down by military and nonmilitary, overseas, and zone of interior from January, 1950, to September, 1952?

ANSWER: The following extract of a communication received from the Director, Office of Progress Reports and Statistics, Office of the Secretary of Defense is quoted for your information: "There are no data available from any source that we know of that could be used as a basis for estimating separately the number of physician man-hours devoted to the care of military and non-military patients in the Continental U. S. and overseas for the period January 1950 through August 1952. Although there are data available on staffing of military hospitals in the Continental U. S. since January 1951 that show the number of physicians used in providing in-patient and out-patient care, the system that collects such data is not keyed to provide a division of medical care in man-hours between military and non-military personnel."

QUESTION 7: What efforts have been made along the following lines to secure medical officers voluntarily, and what were the results of these efforts? (*a*) increased pay; (*b*) increased rank; (*c*) practice privileges; (*d*) predetermined definite assignments as to types of duty, place of duty, and for fixed periods; and (*e*) relief from income tax.

ANSWER: *a.* Medical officers, with the exception of those who accept a commission subsequent to induction in an enlisted status, receive a special pay of one hundred dollars a month in addition to their regular pay and allowances. The problem of special pay is being studied in the office of the Secretary of Defense in connection with a study of all types of extra pay.

QUESTION 8: What efforts have been made along the following lines to decrease the need for physicians in service and what were the results of these efforts?

(*a*) The transfer of all veteran patients to Veterans Administration installations.

(*b*) The prompt transfer of all seriously disabled service personnel to Veterans Administration installations.

(*c*) The curtailment or elimination of medial care for dependents of service personnel and for civilian employees by the armed services. Has thought been given to caring for these individuals by contract medical personnel? Other means?

ANSWER: *a.* The allocation of beds in military hospitals to the Veterans Administration has been limited since the beginning of the calendar year 1950 to those necessary to care for veteran patients in areas where no veteran facilities exist. Since that time the number of beds allocated has been decreasing. For the fiscal year 1953, a total of 1,010 military hospital beds are allocated to the Veterans Administration, 470 in the Army, 520 in the Navy, and 20 in the Air Force.

b. In February, 1951, the Department of Defense directed the military departments to utilize the Veterans Administration Hospital facilities for the care, treatment, and rehabilitation of military patients in categories as recommended by the President's Committee and approved by him. In brief, the transfers are to be made as expeditiously as circumstances permit and with consideration to the welfare of each patient. The amputee centers at Walter Reed Army Hospital and Oak Knoll Navy Hospital are to continue to operate primarily for research and to provide care for the less serious type of amputees who after treatment have a reasonable opportunity of returning to duty. The attached chart shows the progress of this policy.

*Military Patients Transferred to Veterans Administration Hospitals**

Year, Mo.	Total	General †	Tuberculous	Neuro-psychiatric
1951				
Feb.-Dec.	2,329	942	634	753
1952				
Jan.	380	143	92	145
Feb.	273	101	55	117
March	326	108	81	137
April	390	92	135	163
May	298	65	80	153
June	301	74	97	130
July	345	100	119	126
Aug.	254	71	86	97
Sept.	314	104	96	114
Total	5,210	1,800	1,475	1,935

* Source: Progress Reports and Statistics, Office of Secretary of Defense, Oct. 2, 1952.

† Includes the following types of cases:

	1951, May-Dec.	1952 Jan.-June	1952 July	1952 Aug.	1952 Sept.
a. Severe injuries to the nervous system, including quadriplegics, hemiplegics, paraplegics	370	137	14	17	29
b. Blind and the deaf requiring definitive rehabilitation	74	21	3	5	3
c. Major amputees	88	74	5	1	4
d. Neurological disabilities, including poliomyelitis with disability residuals and degenerative diseases of the nervous system	126	141	22	18	17
e. All other types	201	210	56	30	51

c. There has been no curtailment of or indorsed proposal for the elimination of dependent care for dependents of military personnel. Public Law 658, 79th Congress provides for certain types of limited care for civilian personnel for the purposes of eliminating as much time off duty as possible as well as for the immediate care of injuries to employees. In addition, certain civilian employees at designated remote places in the United States and overseas are afforded medical care. This program is considered to be in the direct interests of the military services. Care for dependents and civilian employees by contract physicians has not been considered as a policy at the Department of Defense level. Some contract physicians are used by the services, notably in the Army for dependent care and care of employees. This problem will be presented more fully at the meeting.

QUESTION 9: What efforts have been made to induce medical officers to extend their tours of active duty? Does this include short periods of extension?

ANSWER: All three services permit extensions of tours of active duty. The Navy and the Air Force have used this method to provide sufficient medical officers during foreseeable periods of shortage. The Army limits extensions to a minimum period of one year. One of the difficulties encountered in offering short periods of extension is in making use of these personnel in such a way as to insure that there is not an increase in the number of medical officers above those needed. Planning for personnel procurement needs must be made four to six months in advance of the time medical officers are to arrive at their place of duty. Short-term extensions granted near the termination of assignments merely increases the number of officers on duty at specified installations above those needed. This has occurred.

QUESTION 10: What consideration has been given to increasing the number of available medical officers by changing existing military retirement policies?

ANSWER: The Armed Forces Medical Policy Council has not considered increasing the number of available medical officers by changing existing military retirement policies. Attached is a quoted portion of a letter prepared in the Department of Defense which is explanatory of the position of the Department of Defense:

"The mandatory retirement age of all regular officers in the Army and Air Force in the grade of major general and above is sixty-two years, and in the grade of colonel and below, sixty years. Retirement is mandatory at age sixty-two for all regular officers in the naval service. These provisions of law were enacted subsequent to the end of World War II in the Officer Personnel Act of 1947.

"Two of the more important considerations in the establishing of mandatory retirement ages as set forth above are:

"a. The necessity of maintaining officers in the services who are physically capable of fulfilling assignments wherever needed and commensurate with their grade. This is especially true in the event of war or national emergency. This consideration became particularly evident following the outbreak of World War II, wherein officers, because they were beyond the present mandatory retirement ages, were not, in some cases, physically capable of filling assignments where their services were required.

"b. The necessity for providing a career ladder, by means of which officers may be trained and ready when required to perform their military functions, is believed highly important from a military standpoint. The number of officers in the higher grades is relatively small. The retention of officers on active duty beyond retirement age creates a situation in which advancement of those junior to them is unnecessarily retarded. This, of course, creates a morale problem which, in turn, has adverse effects on the volunteer procurement of medical officers. However, a few officers in the medical services are retained on active duty voluntarily beyond the mandatory retirement age when their services can be utilized in the best interest of the service concerned.

"In reference to the professional manpower problem concerning the retention on active duty of such officers beyond the mandatory retirement age, your consideration is invited to the type of assignments normally held by senior medical, dental and other officers in the medical services in relation to the needs of the services. Almost without exception, these senior officers are assigned to command, staff or other duties that are primarily administrative in nature. Relatively few of these officers devote all or even a major portion of their time to strictly professional duties.

"The problem facing the medical services today is the shortage of medical and dental officers in the junior grades. Those junior medical and dental officers who are now being involuntarily called to active duty are filling primarily professional assignments, positions to which more senior officers are not assigned in consideration of the more rigid physical requirements connected therewith. In addition, the older officers are eminently more suited to command or staff assignments, due to their long and varied experience within the services.

"In order to assess the impact of retirement at mandatory ages as set forth above, the following figures are furnished: As of 1 January 1951, the Navy had on its rolls five hundred and forty-eight retired medical corps officers. Of this number, one hundred and forty-six were retired for all causes other than

physical disability. Of these one hundred and forty-six, fifty-six are now under the age of sixty-four years, forty-seven are from sixty-four to seventy years of age, and forty-three are over seventy years of age. In addition, there were one hundred and eleven dentists on the retired list, twenty-two of whom were retired for all causes other than physical disability. Of the twenty-two who were not retired for reasons of physical disability, ten are now under sixty-four years of age, six dentists are from sixty-four to seventy years of age, and the remaining six over seventy years of age. The Department of the Army carries three hundred and one retired regular medical corps officers on their rolls. All of these officers are under sixty-five years of age; two hundred and twenty-four of this total were retired for physical disability, and seventy-seven retired for causes other than physical disability. In that only a few Air Force medical officers have been retired, comparable figures are not available.

"While it is considered that retirement of military officers at a specific age level is advisable, insofar as the military departments are concerned, it does not preclude the availability of these individuals, consistent with their physical capacities, for positions in civil health fields. This is evidenced by the number of retired officers of the medical services now employed in public health work, hospital administration, medical and dental schools, and other fields of public or semi-public health endeavors where serious shortages of personnel exist. It is believed then that retired officers entering those fields for which their training and background particularly fit them, assists in alleviating the manpower problems discussed in.....memorandum.

"In view of the overall manpower needs and the type of assignments retired officers of the various medical corps would fill, the retention on duty beyond retirement age of the number who may be physically qualified is not considered significant."

QUESTION 11: What action has been taken to date by the Office of the Secretary of Defense in the preparation of legislation to replace the current "doctor-draft law"?

ANSWER: The Armed Forces Medical Policy Council is planning to submit recommendations to the Secretary of Defense concerning legislative proposals to be included in the Department of Defense Legislative Program to provide for the continuing needs of the armed forces for physicians, dentists, and veterinarians. Prior to submitting any proposals the council, through its staff and committees formed for that purpose, is attempting to arrive at a coordinated position in the problem with interested civilian organizations and federal agencies. The progress of action to date in this problem will be reported in detail at the meeting of the Council on National Medical Service of the American Medical Association on Nov. 8, 1952.

QUESTIONS AND ANSWERS—ARMY

QUESTION 1: In your experiences in connection with the "doctor-draft law," what inequities have come to your attention which would suggest desirable changes in the event of future legislation of this type?

ANSWER: The following inequities have been noted by this office insofar as the "doctor-draft law" is concerned:

a. Persons with considerable war service prior to participation in ASTP or V-12 received no credit for such service and are called on the same basis as those persons who have had no such service.

b. Persons with considerable war service in one of the armed forces of countries allied to the United States during World War II received no credit for such service.

c. Section 4 of the act provides for higher grades under certain conditions for physicians and dentists with prior service as such but contains no such provisions for veterinarians.

d. In determining those persons who fall into the first and second priorities under the act, time spent in the military service while participating in postgraduate training programs is excluded. However, this exclusion does not extend to determination of those persons who fall into the third and fourth priorities.

e. Section 1 of the act makes the inclusion of physicians and dentists in the membership of the National Civilian Advisory Committee mandatory but contains no such provision for veterinarians.

f. The effect of section 5 of the act is to deny the special pay for medical and dental officers to those physicians and dentists who have been inducted under the provisions of subsection 4 (i), Universal Military Training and Service Act, and who are subsequently commissioned. On the other hand, under the terms of the law, those physicians and dentists who are inducted under the provisions of subsection 4 (a) of the act cited above and who are subsequently commissioned are eligible to receive special pay paid to medical and dental officers.

QUESTION 2: How many medical officers are on active duty as of September, 1952? Does this include interns and residents? *a.* How many interns in military hospitals? In civilian hospitals? *b.* How many residents in training in military hospitals? In civilian hospitals?

ANSWER: There were approximately 5,800 Army Medical Corps officers on duty during the month of September, 1952. This included interns and residents.

a. Interns in military hospitals	154
Interns in civilian hospitals	0
Total	154
b. Residents in training in military hospitals	323
Residents in training in civilian hospitals	33
Total	356

QUESTION 3: How many board certified medical officers are currently on duty as of September, 1952, by specialty boards? Regular officers? Reserve officers?

ANSWER: There were 579 board certified Army Medical Corps officers on duty. By specialty and component the figures were:

Specialty	Regular Army	Non-Regular Army	Total
Anesthesiology	8	1	9
Dermatology and syphilology	18	6	24
Internal medicine	51	25	76
Internal medicine and allergy	1	0	1
Internal medicine and cardiovascular disease	3	0	3
Internal medicine and gastroenterology	2	0	2
Internal medicine and pediatrics	1	0	1
Internal medicine and pulmonary diseases	1	1	2
Pathology	0	4	4
Pathologic anatomy	25	7	32
Pathologic anatomy and clinical pathology	9	2	11
Pathologic anatomy and clinical pathology; preventive medicine and public health	0	1	1
Clinical pathology	1	2	3
Pediatrics	10	28	38
Physical medicine	5	0	5
Preventive medicine and public health	26	4	30
Preventive medicine and public health; clinical pathology	2	0	2
Psychiatry	18	17	35
Psychiatry and neurology	5	2	7
Neurology	2	3	5
Neurological surgery	2	3	5
Obstetrics and gynecology	9	6	15
Ophthalmology	18	11	29
Orthopedic surgery	23	5	28
Otolaryngology	19	23	42
Radiology	35	35	70
Roentgenology	2	3	5
Diagnostic roentgenology	2	3	5
Surgery	46	19	65
Surgery and thoracic surgery	1	1	2
Plastic surgery	1	1	2
Thoracic surgery	0	1	1
Urology	14	5	19
Total	360	219	579

QUESTION 4: What is the ratio of medical officers to troop strength by month from January, 1950, through September, 1952?

ANSWER: The ratio of medical officers to troop strength (officers per 1,000 troops) from January, 1950, to September, 1952, is given below.

Month	Ratio	Month	Ratio
1950		1951	
January	4.66	June	3.27
February	4.71	July	3.56
March	4.68	August	3.61
April	4.64	September	3.61
May	4.46	October	3.60
June	4.52	November	3.57
July	4.59	December	3.57
August	4.25	1952	
September	3.78	January	3.64
October	3.93	February	3.40
November	4.10	March	3.38
December	3.99	April	3.41
1951		May	3.44
January	3.48	June	3.49
February	3.65	July	3.59
March	3.54	August	3.10
April	3.43	September	3.64
May	3.27		

QUESTION 5: What is the noneffective rate (number confined to hospital or quarters by sickness or injury) by month of your service from January, 1950, through September, 1952?

ANSWER: The noneffective rates expressed as the average daily number of noneffectives per thousand average strength, for the total Army, by cause and by month, January, 1950, to July, 1952, are given below.

Month	All Causes	Disease	Non-battle Injury	Battle Injury and Wound
1950				
January	24.05	19.27	4.66	0.12
February	25.80	20.98	4.70	0.12
March	25.38	20.52	4.74	0.12
April	23.68	18.96	4.62	0.10
May	23.13	18.21	4.85	0.07
June	22.55	17.65	4.86	0.04
July	29.95	17.25	5.04	0.66
August	28.94	18.64	5.71	4.59
September	33.79	19.20	5.48	9.11
October	30.72	17.23	4.63	8.86
November	30.74	18.71	4.64	7.39
December	33.87	19.68	6.00	8.19
1951				
January	37.60	22.97	7.25	7.38
February	38.93	24.91	7.17	6.85
March	35.87	22.43	6.54	6.90
April	32.95	20.71	5.88	6.36
May	31.34	19.31	5.83	6.20
June	30.75	18.73	5.63	6.39
July	28.05	17.65	5.22	5.18
August	28.09	18.30	5.36	4.43
September	28.63	18.33	5.44	4.86
October	29.83	18.15	5.21	6.47
November	30.62	18.79	5.53	6.30
December	29.09	18.00	5.63	5.46
1952				
January	28.05	18.01	5.37	4.67
February	28.51	19.57	5.13	3.81
March	27.51	19.65	4.62	3.24
April	24.88	17.61	4.43	2.84
May	24.28	17.21	4.42	2.65
June	23.91	16.91	4.38	2.62
July	23.57	16.54	4.31	2.72

QUESTION 6: What is the hospital rate by month for your service (military personnel) from January, 1950, through September, 1952?

ANSWER: The hospital admission rates expressed as the number of admissions to hospital per thousand average strength per year, for the total Army, by broad cause group and by month, January, 1950, to May, 1951, are given in the table below.

Month	All Causes	Disease	Non-battle Injury	Battle Injury and Wound
1950				
January	312.03	274.03	37.98	0.02
February	313.22	274.42	38.78	0.02
March	295.41	254.78	40.60	0.03
April	270.82	229.66	41.12	0.04
May	258.00	213.41	44.59	.....
June	250.88	206.82	44.03	0.03
July	302.76	217.05	50.90	34.81
August	412.25	259.43	64.40	88.42
September	467.94	264.99	64.10	138.85
October	338.31	267.53	53.98	16.80
November	349.18	273.55	52.33	23.30
December	400.26	297.44	68.46	34.36
1951				
January	475.73	394.64	72.46	8.63
February	589.62	479.77	62.22	47.63
March	479.48	396.23	52.10	31.15
April	447.40	364.02	45.96	37.42
May	377.88	300.26	47.61	30.01
June	338.26	311.13*		27.13
July	304.04	297.06		6.98
August	312.08	303.38		8.70
September	314.63	284.22		30.41
1951				
October	329.72	286.19		43.53
November	280.85	266.93		13.42
December	298.66	293.25		5.41
1952				
January	297.59	293.49		4.10
February	343.72	340.19		3.53
March	332.55	329.21		3.34
April	272.04	268.00		4.04
May	263.38	259.96		3.42
June	271.70	261.22		10.48
July	260.70	252.75		7.95

* Disease and nonbattle injury are combined in this column. Separate data for these two groups for hospital admissions only are not available from summary reports subsequent to May, 1951.

QUESTION 7: How many medical officers (not of priority 1 or 2 classification) have been recruited into regular service during the period Jan. 1 to June 30, 1952? How many Medical Corps reserve officers (not in priority 1 or 2 classification) have been recruited during the period Jan. 1 to June 30, 1952?

ANSWER: *a.* During the period Jan. 1 to June 30, 1952, 14 have been recruited into the regular service. *b.* During the period Jan. 1 to June 30, 1952, it is unknown how many Medical Corps reserve officers have been recruited.

QUESTION 8: How many retired medical officers from your service are available for recall to active military duty?

ANSWER: As of Aug. 31, 1952, there were 301 retired regular Army Medical Corps officers under age 65 on the retired rolls. These were divided as follows:

Retired for physical disability	224
Retired for other reasons	77
Total	301

It is assumed that none of the 224 officers retired for physical disability will be available for recall. Of the 77 officers retired for reasons other than physical disability, 23 have been recalled and are now on active duty. No assumption can be made concerning the availability for recall of the other 54 officers of this group.

QUESTION 9: What is the basis used for determining which dependents applying for medical care shall receive it? (*a*) hospitalization. (*b*) outpatient care.

ANSWER: Dependent care, both inpatient and outpatient, is provided in Army medical treatment facilities on the basis of availability of facilities and personnel. Authorization for medical care in each case is under the jurisdiction of the commanding

officer of the medical treatment facility concerned. Application for medical care must be accompanied by evidence satisfactory to the commanding officer showing eligibility and need for medical care. When limited facilities are available, care is furnished on a first-come, first-served basis, consistent with the specialized facilities available. Dependent medical care is authorized in paragraph 5b, AR 40-506, Oct. 9, 1950, and has legal basis in the act of July 5, 1884 (C. 217, 23 Stat. 112).

QUESTION 10: What is the basis and authority for providing medical care for civilian employees?

ANSWER: The policy of the Department of the Army is such that civilian employees are not furnished medical care and treatment except those specifically authorized such care under the provisions of law, by reason of being in overseas or isolated areas, and, due to the absence of suitable civilian medical treatment facilities. Medical care provided is on a reimbursable basis in all such cases except emergency outpatient treatments for "on-the-job" illness, provided under the Army Federal Civilian Employees' Health Service Program.

a. Civilian employees who are beneficiaries of the Bureau of Employees' Compensation under the provisions of Public Law 267, 64th Congress, as amended, are authorized medical care on a facilities available basis, for personal injury (including occupational diseases) sustained while in the performance of duty. This provision is contained in paragraph 5g, AR 40-506.

b. Civilian employees of the Army are authorized emergency treatment for "on-the-job" illness through the Army Federal Civilian Employees' Health Service Program. This provision is contained in note 20 to table 1, C5, AR 40-506, March 21, 1952, and is based on Public Law 658, 79th Congress (60 Stat. 903).

c. Civilian employees who are the primary responsibility of other federal agencies are authorized medical care in Army hospitals on a reciprocal basis by paragraphs 5m and 5n, AR 40-506, in accordance with the authority granted in sec. 601.47 Stat. 417, 31 U.S.C. 686. Such care is provided outside the United States and is limited by the availability of facilities. Outpatient treatment is provided for civilian employees of the Public Health Service in the United States and its possessions in emergency only.

QUESTION 11. What has been the number of obstetric deliveries by month from January, 1950, through September, 1952? (*a*) overseas, (*b*) zone of interior.

ANSWER: The number of live births and stillbirths in U. S. Army medical treatment facilities for 1950 and 1951 and for 1952 by area and by months is given below.[1]

Year or Month	Worldwide		United States		Overseas	
	Live Births	Still-births	Live Births	Still-births	Live Births	Still-births
1950*	32,203	430	.....	..	...	..
1951*	44,820	628	.....	..	...	..
1952						
Jan.	4,703	40	3,794	27	909	13
Feb.	3,895	39	3,186	28	709	11
March	4,110	62	3,401	48	709	14
April	4,654	66	3,837	59	817	7
May	3,767	64	3,116	59	651	5
June	4,383	61	3,681	51	702	10
July	5,974	81	5,069	64	905	17

* Breakdown by month and area not available. Data available for June, 1951, indicate only that the number of live births overseas constituted approximately 20% of the number of live births worldwide.

QUESTION 12: What has been the average number of nonmilitary (dependents, veterans, civilian employees, etc.) patients in your service hospitals by month from January, 1950, through September, 1952? What has been the average number of total patients in your service hospital by month from January, 1950, through September, 1952?

ANSWER: The average number of nonmilitary patients remaining and the average number occupying beds in U. S. Army hospitals and infirmaries, by month, January, 1950, to July, 1952, is given below.[2] Patients remaining include all patients for the period from date of their admission to their return to duty or other final disposition. Patients occupying beds differ from patients remaining in that the former exclude certain patients such as those on sick or convalescent leave, detached service by reason of transfer to VA hospital ahead of separation, etc.

Month	Average Number Remaining	Nonmilitary Patients Occupying Beds
1950		
January	5,626	5,582
February	6,000	5,988
March	5,490	5,483
April	4,911	4,902
May	4,512	4,505
June	4,368	4,366
July	4,326	4,322
August	4,294	4,290
September	4,466	4,464
October	5,634	5,631
November	8,050	8,047
December	10,484	10,480
1951		
January	12,478	12,476
February	14,355	14,353
March	15,830	15,828
April	15,314	15,312
May	14,526	14,525
June	15,764	15,725
July	14,474	14,441
August	13,869	13,843
September	13,771	13,744
October	14,633	14,600
November	14,754	14,726
December	14,452	14,388
1952		
January	14,329	14,294
February	14,940	14,909
March	15,215	15,169
April	14,933	14,910
May	14,092	14,060
June	13,037	12,995
July	13,100	13,059

Nonmilitary patients remaining in military hospitals and infirmaries as of a specific reporting period during the month of July, 1952; i. e., as of July 30, 1952, were as follows:

Personnel	Numbers
National Guard	105
ORC	57
ROTC	47
Army (retired)	254
Navy (Marine retired)	17
Air Force (retired)	36
Army (dependents)	2,667
Navy-Marine (dependents)	236
Air Force (dependents)	734
Coast Guard	16
USPHS	9
BEC beneficiaries	39
Other U. S. employees	121
VA beneficiaries	665
Allied and neutrals	480
General prisoners	74
Cadets	35
POW's	6,000
Koreans	1,446
Others	238
Total	13,276

1. Source for 1950 and 1951: preliminary machine tabulations of individual medical records, for 1952: Beds and Patients Report (DD Form 443). Data are preliminary.

2. Source for January, 1950, to May, 1951: Statistical Health Report WD AGO Form 8-122. Data are preliminary. Source for June, 1951, to July, 1952: Beds and Patients Report (DD Form 443). Data are preliminary.

The average number of patients (military and nonmilitary combined) remaining and occupying beds in U. S. Army hospitals and infirmaries, by month, January, 1950, to July, 1952, is given below.

Month	Average All Patients	
	Remaining	Occupying Beds
1950		
January	22,168	19,418
February	24,142	22,942
March	23,058	21,704
April	21,728	20,142
May	20,906	19,037
June	19,928	18,188
July	20,190	18,560
August	22,590	20,802
September	26,507	24,506
October	30,702	28,054
November	35,973	32,462
December	48,556	36,643
1951		
January	51,243	44,160
February	59,134	54,132
March	63,341	57,523
April	61,386	55,854
May	59,912	54,824
June	61,095	55,680
July	58,284	52,491
August	57,052	51,096
September	57,548	51,789
October	60,474	55,027
November	61,259	55,631
December	59,099	50,452
1952		
January	57,770	49,651
February	59,550	54,651
March	58,771	53,526
April	55,961	50,318
May	53,145	47,933
June	51,370	46,122
July	50,616	45,241

QUESTION 13. What proportion, in relation to the total, of medical officer manpower is required in the care of nonmilitary personnel in your service hospitals? In your outpatient department? (If these figures are not available, when can they be made available, or when can a pilot study be run that would be clearly indicative?)

ANSWER: Estimates have been developed along two possible assumptions.

a. If the implication of the question is proportional distribution of workload or costs, the estimate can be dveloped in terms of direct segregation of workloads; that is, if 10% of the over-all workload carried by medical officers is due to the care of nonmilitary personnel in Army hospitals, then it is assumed that 10% of medical officer manpower is due to these patients. On this basis, following is the percentage of medical officer manpower required in the care of nonmilitary personnel.

	Total	Inpatient	Outpatient
Dependents	6.2	3.1	3.1
U. S. Employees *	1.3	0.1	1.2
Other †	3.2	2.6	0.6
Total	10.7	5.8	4.9

* Consists primarily of workers in Army industrial facilities.
† Includes USPHS employees, BEC beneficiaries, VA beneficiaries foreign nationals, Red Cross, YMCA, and others.

b. If the question is put in terms of the additional medical officers required to absorb the workload of nonmilitary patients or the percentage of medical officers that could be saved if this workload is eliminated, an entirely different approach is necessary. This estimate must be developed hospital by hospital on the basis of differences in size of workload if only military personnel were provided care and current practice. On this basis the estimate, with U. S. employees and "other" defined as above, is as follows:

	Total	Inpatient	Outpatient
Dependents	5.3	2.8	2.5
U. S. Employees	1.1	0.1	1.0
Other	2.8	2.3	0.5
Total	9.2	5.2	4.0

QUESTION 14. Can you supply a table showing the number of seriously disabled military personnel of your service transferred to Veterans Administration facilities from February, 1951, through September, 1952? How many of the same categories were retained in military hospitals in the same months?

ANSWER: The table, page 238, shows the number of Army patients, by diagnosis, for whom beds have been designated in Veterans Administration hospitals each month during the period from May, 1951, to Septembr, 1952. This information has been derived from monthly reports submitted by the Chief, Armed Services Medical Regulating Office, to the Director, Office of Progress Reports and Statistics, Office of the Assistant Secretary of Defense, subject: Military Patients Transferred to Veterans Administration Hospitals. This report was initiated for the report month of May, 1951, and data on this subject were not compiled prior to that month.

Statistics are not available to show the categories of "seriously disabled" military personnel who were retained in military hospitals during the months of May, 1951, through September, 1952. While a survey could be conducted to determine the number of Army patients with primary diagnoses who remained in Army hospitals as of any particular date or dates, it is considered that such statistics would serve little or no useful purpose without a detailed breakdown showing the dates of admission and disposition and the type of disposition in each and every case. The length of time that patients are retained in Army hospitals is not governed by the patient's diagnosis. Determination of the appropriate disposition for patients, and establishment of the time at which appropriate patients will be processed for disability separation, must be determined on an individual basis. In order to insure that the best interests of both the government and the patient are served, it is necessary that a number of factors be considered in each and every case. Primary among the factors to be considered in determining a patient's ultimate disposition, and the length of hospitalization to be furnished prior to that disposition, is the patient's potential value to the service. Other factors which influence a patient's disposition and his retention in an Army hospital are the patient's training and experience, his motivation, the likelihood of his return to duty, the type and degree of his disability, the circumstances under which the disability was incurred, and the patient's probable total length of hospitalization. Under such circumstances the disposition of patients with identical diagnoses may vary widely. For example, while certain patients will be processed for disability separation and transfer to the Veterans Administration at a relatively early stage in their hospitalization, others with essentially the same diagnoses (including multiple amputees) whose retention in the service is desirable, as indicated above, will be furnished maximum hospital benefits in Army hospitals and then returned to duty. It should also be noted that a certain period of hospitalization is required in every disability separation case, including those cases where a serious disability is involved, in order to permit evaluations sufficient to form the basis for the determinations required by the Career Compensation Act of 1949.

QUESTIONS AND ANSWERS—NAVY

QUESTION 1: In your experience in connection with the "doctor-draft law," what inequities have come to your attention which would suggest desirable changes in future legislation of this type?

ANSWER: 1. Approximately 35 known persons who now hold commissions in the Naval Reserve Medical Corps participated as students in the Navy V-12 Program for the purpose of pursuing a course of instruction leading to his education other than medicine. These individuals have served less than 90 days on active duty, or have had no active duty, except in such program, but after release from the program they have entered and completed medical education. The studies they pursued in the V-12 Program qualified them for entrance in medical school. But under present instructions it has been necessary to classify them as being in the fourth priority. In many instances the individuals have received more benefits in the V-12 Program than a large

percentage of our present first and second priorities. This is only a few known cases, and undoubtedly many similar cases could be found with special registrants or reserve officers in other services.

If these individuals were not credited for active duty in such program, many would fall in the third priority. Therefore, to eliminate such inequities the type of active duty for the purpose of determining priority status should be clearly defined and insure that each branch of the armed forces use the same formula for computing such service. In this connection definite release policies should be established which will insure that each service will retain the individual for the full period of his obligated service so long as military necessity dictates.

Following is the recommended definition, which is submitted for consideration: "Active duty" should mean full-time duty in the active military service of the United States, and for the purpose of computation of periods of active duty no credit should be allowed for:

(*a*) periods of active training performed as a member of a reserve component pursuant to an order for call to active duty solely for training purposes

(*b*) periods of active duty in which service consisted solely of training under the Army Specialized Training Program, the Army Air Force College Training Program, the Navy College Training Program, and any similar programs under the jurisdiction of the armed forces

(*c*) periods of active duty as a cadet or midshipman at armed forces academies, or in a preparatory school after nomination as a principal, alternate, or candidate for admission in any such academy

(*d*) periods of active duty as a member of any of the Armed Forces Reserve Officer Training Corps or Officer Candidate Programs

(*e*) periods of active duty in any of the armed forces while being processed for entry into or separation from any educational program or instruction referred to in (*b*), (*c*), or (*d*)

(*f*) periods of active duty spent in postgraduate training while completing internship, residency, or fellowship in a medical category.

2. Under existing instructions there are considerable inequities in the rank of the Naval Reserve medical and dental officers recalled to active duty in accordance with the provisions of the present law. Pursuant to the provisions of Title III of Public Law 810, 80th Congress, the several secretaries were required to prescribe appropriate standards and qualifications for retention and promotion of members of the Reserve components of the armed forces. This statute also requires the transfer to the Reserve Officers' Inactive Status List of those officers who fail to meet the prescribed standards and qualifications. While on inactive duty reservists are required to earn part of these benefits by participation in the reserve program. It is realized that physicians and dentists, by the very nature of their daily and civilian occupation, are constantly keeping abreast in their fields, but are unable to participate in the reserve program. Hence they have been transferred to the Inactive Status List and are not eligible for consideration for promotion. They are now being recalled to active service in the rank which they held at the time of their release from active duty three to six years ago. This is especially true in the case of those classified as being in priority 2. It is therefore recommended consideration be given to the incorporation of definite provisions for the adjustment of such reserve officers' grade at the time they are called to active duty. A uniform professional-age-grade structure should be established in this respect for the three branches of the armed forces.

3. Amendments to the present law should not create a situation where, under new priority definitions, those who have served on full time active duty in the military service will be required to serve another period before those who have not served at all. That is, the vulnerability of those classified in the present third priority should not be lessened at the expense of those who have served.

4. Provisions should be established whereby individuals who have served on full-time active duty during certain periods to be established and who have fulfilled their obligated service will not be recalled except in a national emergency and mobilization declared by Congress.

5. The Navy Department is currently ordering to active duty medical officers classified in the second order of priority. This group of medical officers, who are being ordered into active military service for the second time, have not infrequently voiced opinions relative to inequities existing under the "doctor-draft law." As is apparent, the voice of objections cries "why are we being involuntarily ordered to active duty for the second time in our careers when countless numbers of physicians who have never served on active duty are allowed to remain in civilian life"? While the relatively small group of priority 2 physicians will have been ordered to active duty before any remedial action could be effected, it nevertheless should be the subject of consideration.

The great majority of medical officers in the second order of priority, and who hold commissions in the Naval Reserve, received a relatively small part of their medical education under government sponsorship, especially when compared with their counterparts who are classified as priority 1. In addition, they have served periods of active duty extending from 90 days to 20 months and 29 days subsequent to release from the program. Some medical officers in this group received less than six months of government-sponsored education. In return, some have already served on active duty for over 20 but less than 21 months. Under existing law, they are obligated for 24 months of active duty. It is apparent that such an individual will be required to serve approximately 44 months' active service for a relatively few months of government-sponsored education. On the other hand, some priority 2 medical officers, who received as much as two and one-half calendar years of government-sponsored education, can liquidate their obligation by serving on active duty for 24 months. This comparison presents a gross inequity.

Army Patients for Whom Beds Have Been Designated in Veterans Administration Hospitals

	1951								1952								
	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Severe injuries to the nervous system, including quadriplegics, hemiplegics, and paraplegics	28	30	35	51	32	48	47	19	34	19	18	8	7	14	10	11	20
Blind and deaf requiring definitive rehabilitation	13	3	11	6	9	3	3	12	5	6	6	1	1	0	2	3	2
Major amputees	5	6	3	3	5	7	5	12	19	13	11	14	5	2	4	1	2
Neurological disabilities, including poliomyelitis with disability residuals and degenerative diseases of the nervous system	12	4	4	8	2	7	16	14	23	14	26	14	6	4	7	16	8
Extensive plastic and thoracic surgical procedures	0	0	0	0	1	0	3	0	2	1	0	0	0	1	0	0	1
Tuberculous	20	14	18	20	21	17	9	6	29	24	42	29	9	45	44	37	44
Neuropsychiatric	26	23	19	25	21	30	31	24	43	28	31	52	29	30	44	41	48
All other types	4	3	8	10	13	6	7	5	8	7	7	8	7	14	20	8	25
Total	108	83	98	123	104	118	121	92	163	112	141	126	64	110	131	117	150

QUESTION 2: How may medical officers are on active duty as of September, 1952? Does this include interns and residents? *a.* How many interns in military hospitals? In civilian hospitals? *b.* How many residents in training in military hospitals? In civilian hospitals?

ANSWER: There were 4,281 medical officers on active duty as of Sept. 30, 1952, including interns and residents. *a.* There were 126 interns in Naval Hospitals. There were no interns in

civilian hospitals. *b.* There were 164 residents in Naval Hospitals. There were 40 residents in civilian hospitals and institutions.

QUESTION 3: How many board certified medical officers are currently on duty as of September, 1952, by specialty boards? Regular officers? Reserve Officers?

ANSWER:

Specialty	USN Certified Sept. 1, 1952	USNR Certified Sept. 1, 1952
Anesthesia	6	0
Dermatology and syphilology	13	1
Gastroenterology	1	0
Internal medicine	31	2
Obstetrics and gynecology	29	1
Neurosurgery	1	1
Ophthalmology	26	0
Orthopedic surgery	14	0
Otolaryngology	28	1
Pathology	23	1
Pediatrics	11	2
Plastic surgery	1	0
Preventive medicine and public health	15	0
Proctology	1	0
Psychiatry and neurology	36	4
Radiology	25	2
Surgery	38	1
Thoracic surgery	3	0
Urology	13	0
	315	16

QUESTION 4: What is the ratio of medical officers to troop strength, by month, from January, 1950, through September, 1952?

ANSWER:

Year 1950	Troop Strength	Medical Officers on Board	Officers per 1,000 Troops
January	497,489	3,039	6.1
February	482,052	3,027	6.2
March	460,971	2,989	6.4
April	461,494	2,976	6.4
May	456,912	2,952	6.4
June	455,444	2,916	6.4
July	454,693	2,708	5.9
August	469,960	2,709	5.8
September	538,727	2,951	5.5
October	609,254	3,107	5.1
November	664,650	3,550	5.3
December	697,703	4,110	5.9
1951			
January	717,190	4,227	5.9
February	770,542	4,365	5.6
March	813,168	4,422	5.4
April	845,546	4,485	5.3
May	865,767	4,449	5.1
June	899,094	4,403	4.9
July	930,826	4,308	4.6
August	944,741	4,248	4.5
September	961,008	4,191	4.4
October	973,452	4,189	4.3
November	985,931	4,192	4.3
December	988,711	4,184	4.2
1952			
January	1,006,449	4,271	4.3
February	1,015,037	4,284	4.2
March	1,042,289	4,258	4.1
April	1,044,853	4,212	4.0
May	1,051,986	4,241	4.0
June	1,049,439	4,289	4.1
July	1,061,341	4,175	3.9
August	1,052,699	4,210	4.0

The abnormally low ratio of medical officers to troop strength from February to August, 1952, was obtained at the expense of important training functions in the fields of aviation medicine and other military specialties.

QUESTION 5: What is the noneffective (sick or injury) rate by month of your service from January, 1950, through September, 1952?

ANSWER: The noneffective rate, for all causes, Navy and Marine Corps, by month, 1950-1952, is given below.

Month and Year	Noneffective Rate per 100 Average Strength	Month and Year	Noneffective Rate per 100 Average Strength
1950		1951	
January	1.82	May	2.10
February	2.13	June	2.16
March	2.09	July	2.06
April	1.95	August	2.04
May	2.01	September	2.10
June	1.94	October	1.83
July	1.92	November	1.84
August	1.87	December	1.84
September	1.76	1952	
October	1.67	January	2.01
November	1.61	February	2.05
December	1.94	March	2.00
1951		April	1.82
January	2.01	May	1.75
February	2.61	June	1.79
March	2.60	July	1.73
April	2.26		

QUESTION 6: What is the hospital rate by month for your service (military personnel) from January, 1950, through September, 1952?

ANSWER: The hospitalization rate for Navy and Marine Corps, by month, 1950-1952, is given below.

Month and Year	Hospitalization Rate per 100 Average Strength	Month and Year	Hospitalization Rate per 100 Average Strength
1950		1951	
January	1.74	May	1.96
February	1.82	June	1.73
March	1.71	July	1.80
April	1.66	August	1.74
May	1.67	September	1.73
June	1.65	October	1.67
July	1.66	November	1.60
August	1.62	December	1.43
September	1.75	1952	
October	1.78	January	1.53
November	1.91	February	1.72
December	2.20	March	1.67
1951		April	1.57
January	2.31	May	1.52
February	2.17	June	1.49
March	2.03	July	1.44
April	2.06		

QUESTION 7: How many medical officers (not of priority 1 or 2 classification) have been recruited into regular service during the period Jan. 1 to June 30, 1952? How many medical corps reserve officers (not in priority 1 or 2 classification) have been recruited during the period Jan. 1 to June 30, 1952?

ANSWER: During the period Jan. 1, to June 30, 1952, only two medical officers (not of priority 1 or 2 classification) were recruited into the regular service. During the same period, 25 medical officers (not of priority 1 or 2 classification) were recruited into the Medical Corps of the Naval Reserve. A recapitulation of this group of appointments by month is as follows:

1952	
January	7
February	6
March	2
April	3
May	3
June	4
Total	25

QUESTION 8: How many retired medical officers from your service are available for recall to active military duty?

ANSWER: There are 553 retired medical officers on the rolls of the Navy Department. A comprehensive survey of this group indicates that only 83, or 15%, are considered available for recall to active duty. The data reflected above were procured from a study made by the Bureau of Naval Personnel in March, 1952.

QUESTION 9: What is the basis used for determining which dependents applying for shall receive medical care? (*a*) hospitalization. (*b*) outpatient.

ANSWER: *Hospitalization.* In accordance with the provisions of Public Law 51 of the 78th Congress dependents of Naval and Marine Corps personnel may be hospitalized only for acute medical and surgical conditions, exclusive of nervous, mental, or contagious diseases or those requiring domiciliary care. Dental treatment is authorized only as an adjunct to inpatient care and does not include dental prosthesis or orthodontia.

Outpatient. Dependents of Naval and Marine Corps personnel may be afforded outpatient medical care for any medical or surgical condition including nervous, mental, or contagious diseases until a diagnosis is established and hospitalization becomes necessary.

Policies in Regard to Care of Military Dependents, Present and Proposed. The provision of medical care for dependents of Naval personnel by the Medical Dpartment of the Navy appears to stem from the act of July 5, 1884 (23 Stat. 112). In 1913, the edition of Navy regulations provided that medical officers of the Navy would be required, in addition to their official duties, to attend the families of officers and enlisted men residing within a prescribed distance from Navy Yards, Naval Stations, Recruiting Offices, and the Navy Department. Prior to 1935, however, medical care for dependents of naval personnel was provided for the most part on an outpatient basis, and cases requiring inpatient care were hospitalized in civilian hospitals, the dependents bearing the expense of the hospital accommodations, and being attended by medical officers of the Navy. In 1935, the first dependent inpatient facilities were made available to naval dependents.

Dental care is provided to dependents of Army and Air Force personnel on the same basis as medical care, while dental treatment for dependents of naval personnel is administered only as an adjunct to inpatient hospital care and does not include dental prosthesis or orthodontia.

On Aug. 12, 1948, the Secretary of Defense, in a directive to the three Secretaries, enunciated the policy of the National Military Establishment to be that the Departments of the Army, Navy, and Air Force would afford medical care for the dependents of personnel in their respective military departments on a reciprocal basis within the limitations of facilities, funds, and personnel. Implementation of this policy was brought about by the preparation of a directive by the Army, WLC 27946, and the Navy, BuMed Circular Letter 48-106. These directives were prepared to coincide with the provisions and verbal structure.

On Oct. 20, 1949, the Director of the Bureau of the Budget, in a letter to the Secretary of Defense, recommended that as an equitable treatment of federal employees, the military services would no longer provide medical care for dependents of military personnel at the expense of the government, and that these services be obtained through local medical and hospital resources. He stated that the discontinuance of these services would materially assist in relieving the shortage of medical and other professional personnel in the armed forces. In a reply to this letter, the Secretary of Defense pointed out that previous studies both within and without the Department of Defense had reached the conclusion that medical care of dependents of military personnel should be continued. While recommending against the elimination of medical care for dependents, the Secretary of Defense acknowledged the complexity of the subject and the need for continuous review of the practice of the military establishments in providing such care. To afford such a review and to assure uniformity in this regard among the Army, Navy, and the Air Force, he established an ad hoc committee to review the entire subject. The members of this committee were: Dr. R. L. Meiling, Director of Medical Services, Chairman; Mr. W. J. McNeil, Assistant Secretary of Defense (Comptroller); General J. T. McNarney, Chairman of the Management Committee; and the Chairman or Acting Chairman of the Personnel Policy Board.

After holding a number of meetings relative to the subject of dependent care, this committee was dissolved as a result of change in personnel. On March 31, 1952, a committee was reconstituted to complete the study of the problem, and the following members were appointed: Dr. M. A. Casberg, Chairman, Armed Forces Medical Policy, Chairman; Mr. W. J. McNeil, Assistant Secretary of Defense (Comptroller); General J. Lawton Collins, Chief of Staff, Army; Admiral W. M. Fechteler, Chief of Naval Operations; General Nathan F. Twining, Acting Chief of Staff, Air Force. This committee now is holding meetings for the purpose of making appropriate recommendations to the Secretary of Defense for a proposed policy for future medical care of dependents of military personnel.

QUESTION 10: What is the basis and authority for providing medical care for civilian employees?

ANSWER: 1. Authorization for providing medical care for Navy civilian employees is: (*a*) U. S. Employees' Compensation Act of 1916 as amended to Oct. 14, 1949; (*b*) Civil Service Regulations promulgated originally in 1924; (*c*) Public Law 658 of the 79th Congress; and (*d*) White House Policy Statement of Jan. 9, 1950.

2. Based upon these laws and regulations, the Civil Service Commission and the Bureau of Employees' Compensation have provided, in manual form, a standard policy for compliance by the various federal departments of the U. S. Government.

3. In the Navy, the Navy Civilian Personnel Instructions formulate and set down interpretations from the Civil Service Commission and the Bureau of Employees' Compensation manuals. This is the authority from which medical services to Navy Civil Service employees are rendered.

QUESTION 11: What has been the number of obstetric deliveries by month from January, 1950, through September, 1952? (*a*) overseas. (*b*) zone of interior.

ANSWER: The number of obstetric deliveries, for U. S. Naval hospitals, continental and noncontinental, by month, 1950-1952, is given below.

Month and Year	All Hospitals	Continental Hospitals	Non-continental Hospitals
1950			
January	2,045	1,991	54
February	1,859	1,802	57
March	1,874	1,824	50
April	1,568	1,520	48
May	1,634	1,589	45
June	1,649	1,606	43
July	1,772	1,702	70
August	2,054	2,005	49
September	1,954	1,938	16
October	2,214	2,146	68
November	2,011	1,967	44
December	2,120	2,054	66
1951			
January	2,231	2,174	57
February	2,102	2,036	66
March	2,478	2,409	69
April	2,261	2,210	51
May	2,388	2,335	53
June	2,174	2,137	37
July	2,167	2,125	42
August	3,228	3,167	61
September	2,787	2,711	76
October	3,368	3,286	82
November	2,653	2,585	68
December	2,651	2,592	59

1952			
January	3,356	3,295	61
February	2,677	2,613	64
March	2,782	2,719	63
April	3,382	3,305	77
May	2,703	2,646	57
June	2,781	2,706	75
July	3,901	3,815	86
August	3,300	3,214	86

QUESTION 12: (*a*) What has been the average number of nonmilitary (dependents, veterans, civilian employees, etc.) patients in your service hospitals by month from January, 1950, through September, 1952? (*b*) What has been the average number of total patients in your service hospital by month, January, 1950, through September, 1952?

ANSWER: The average census of patients in U. S. Naval hospitals, by month, 1950-1952, is given below. This includes all patients other than active duty Navy, Marine Corps, Army, and Air Force and retired military.

Month and Year	All Patients	Nonmilitary Patients
1950		
January	14,016	4,765
February	14,615	4,860
March	13,546	4,246
April	13,018	3,860
May	12,516	3,557
June	12,274	3,412
July	12,228	3,335
August	12,424	3,375
September	13,819	3,154
October	16,832	2,546
November	17,925	2,288
December	20,621	2,277
1951		
January	21,950	2,483
February	22,466	2,613
March	21,603	2,622
April	21,642	2,644
May	21,472	2,604
June	21,456	2,563
July	21,775	2,628
August	21,349	2,667
September	21,070	2,607
October	20,704	2,620
November	20,084	2,665
December	19,276	2,487
1952		
January	20,337	3,852
February	22,283	3,920
March	22,102	3,869
April	20,833	3,750
May	20,518	3,777
June	20,198	3,638
July	19,427	3,506
August	19,201	3,422

QUESTION 13: What proportion, in relation to the total, of medical officer manpower is required in the care of nonmilitary personnel in your service hospitals? In your outpatient department? (If these figures are not available, when can they be made available, or when can a pilot study be run that would be clearly indicative?)

ANSWER: Complete and accurate figures relative to this question are not currently available. It is anticipated that a pilot study will be completed within the next 45 days which will be clearly indicative of the question posed.

QUESTION 14: (*a*) Can you supply a table showing the number of seriously disabled military personnel of your service transferred to Veterans Administration facilities from February, 1951, through September, 1952? (*b*) How many of the same categories were retained in military hospitals in the same months?

ANSWER: (*a*) Following is a tabulation of the number of transfers to VA hospitals (active duty status only) not including patients transferred after retirement or discharge from service by Medical Survey.

1951	
February	0
March	0
April	1
May	52
June	100
July	145
August	157
September	100
October	124
November	112
December	72
1952	
January	177
February	103
March	121
April	194
May	148
June	127
July	143
August	76
Total	1,952

(*b*) Following are data on long-term active duty Navy and Marine Corps patients remaining in Navy hospitals as of May 7, 1952.[1]

Diagnostic Group	Total Patients	Length of Stay: 6-9 Months	9-12 Months	12-18 Months	18-24 Months	24 Months and Over
Open Ward, NP.	18	16	..	2	..	..
Closed Ward, NP.	15	13	1	1	..	..
Neurological	59	43	11	4	1	..
Tuberculosis	38	33	4	1	..	..
Blind	2	2	..	..	..	..
Deaf	1	..	1	..	..	..
Paraplegics	6	1	4	1	..	..
Arthritics	7	3	1	3	..	..
Major Amputees	40	32	1	2	4	1
Malignant Neoplasms	16	12	2	2	..	..
All Other	553	345	115	76	15	2
Total	755	500	140	92	20	3

1. Source: Special census as of May 7, 1952, "Report of Hospitalization Experience of Retired Military Patients and Long-Term Active-Duty Patients (Reports Symbol DD-OPRS[OT]104)."

MEDICAL MOTION PICTURES

Mycosis Fungoides: 16 mm., color, sound, showing time 15 minutes. Produced in 1952 for the Department of Medicine and Surgery by Presentation Division, Veterans Administration, under the technical supervision of the Department of Pathology, Veterans Administration Hospital, Fort Benjamin Harrison, Indiana. Procurable on loan from Central Office Film Library, Motion Picture Service, Office of Information, Department of Agriculture, Washington 25.

This film concisely presents the development of the concept of mycosis fungoides from the time of D'Alibert to Custer. In addition to the presentation of the different clinical types of the disease to show the great difficulty in early diagnosis, emphasis is laid on the histological diagnosis. The latter is demonstrated by numerous sections with proper underlining of the diagnostic importance of the polymorph cell elements. As to the therapy of the condition, x-ray is the first choice and cortisone, corticotropin (ACTH), and nitrogen mustards are suggested. It is pointed out, however, that, at least in the case demonstrated, cortisone in very high dosage gave no results and nitrogen mustard caused severe anemia and bone marrow depression, which quickly led to the death of the patient. The text at the end of the film is somewhat lengthy. The photomicrographs and clinical photographs are very well done. The film as a whole gives a good over-all picture and is recommended for dermatologists, senior medical students in their course in dermatology, and resident pathologists.

Histological Technique: 16 mm., color, silent, showing time 30 minutes. Prepared by Dr. James A. Miller, Dept. of Anatomy, Emory University. Produced in 1952 by Emory University School of Dentistry and procurable on rental or purchase from Dr. James A. Miller, Basic Sciences Building, Emory University, Georgia.

This film contains a detailed step-by-step description of histological technique, beginning with removal of tissue and continuing through fixation, washing, dehydration, clearing, infiltration, embedding, sectioning, spreading and affixing on slide, staining, and mounting. In many places it is obvious that a few words would have clarified points that are otherwise unintelligible, and the badly stained fingers of the technician are not a part of good histological technique. As it is, the film will not serve the purpose of teaching histological technique to technicians who are not already familiar with this subject. On the other hand, such a technician has little need for this type of film except for review purposes.

The most valuable feature is a series of views that emphasize the importance of proper embedding by demonstrating artefacts resulting from sections cut at various angles through an orange, a bunch of macaroni (to illustrate blood vessels), and a model of epithelial cells. What is shown is done thoroughly. Actually, it does nothing that could not be done equally well or even better with lantern slides. The color quality is good; however, the film is somewhat lacking in continuity. It has limited usefulness unless accompanied by a talk to facilitate understanding, but it can then be used for teaching histological technique to students and laboratory technicians. In its present form, it can be recommended as a review of the subject.

MISCELLANY

HOSPITAL ACCREDITATION PROGRAM

Abstract of Address of Honorable Lister Hill, U. S. Senator from Alabama

When knowledge of the cause and cure of disease was meager, when the scope of the ministrations of the physician and the surgeon was small, the home was adequate for the care of the sick and the injured. The hospital was for those who had no home. Hospitals were mostly for indigent people who could no longer attend to their daily necessities.

The role of the hospital in the community began to change in the last years of the 19th century. As late as 1893, a President of the United States underwent a serious surgical operation in an improvised operating room on a private yacht. It was about this time that the discoveries of Pasteur, Koch, and other pioneer bacteriologists began to be applied by Lister. It soon became evident that effective application of these epochal discoveries required equipment and an environment which could not be provided in the home. At that moment, the role of the hospital changed from that of a pest house and a poor house to that of a life-saving institution offering the benefits of scientific discoveries to the sick.

Then came Roentgen with the x-ray and the revolutionary advances in diagnosis and treatment that it brought. But the wonderful machine was expensive and immobile. It could not be brought to the patient—the patient had to be brought to it.

Radical changes in the economy of the country also made the home less suitable to care for the sick. Houses became smaller—the sick could not be isolated. Domestic servants disappeared from the homes of all save the rich. Many housewives entered business and industry. There were few left in the home to care for the sick.

Within our day and almost within our generation, the hospital has evolved from a refuge for the dying to a necessity for the living. No longer do our people fear hospitals.

Over 19 million Americans were hospitalized last year. There were some 40 million visits to outpatient departments, which means one patient entering every 2½ seconds, or 2,000 every hour.

In this evolution from a refuge for the few to an institution necessary to the lives of all of us, the hospital has incurred heavier and heavier responsibility. The public has a responsibility to hospitals, the responsibility to support and maintain them, but it is the great responsibility of hospitals to the public with which we are concerned today.

The hospital accreditation program established and conducted by the American College of Surgeons is both a recognition of the responsibility of the hospital to the community and the means of discharging this responsibility. The establishment and enforcement of standards of excellence through private effort and voluntary agreement almost disappeared with the decline of the guilds of several centuries ago. Regulation had become more and more a function of government. The American College of Surgeons, with its program of accreditation, revived the wise practice of self-regulation, stressed the responsibility of the local community for good medical and hospital care and stimulated the hospital to meet its responsibility in an integrated hospital system. These are foundation stones on which is built better medical care. These are foundation stones which insure the independence and freedom of our hospitals and which strengthen the freedom of the individual doctor and preserve his unique place of confidence and trust.

The program of accreditation is unusual in the degree of acceptance it has achieved, especially among hospitals. One might think that hospitals would resent the inevitable criticism. On the contrary, from the very beginning and through the years, hospitals embraced the program with enthusiasm and have cooperated faithfully with the American College of Surgeons. This is eloquent evidence of the recognition by hospitals of their public responsibility, and of their determination to meet fully this responsibility.

We have just witnessed the transfer of the administration of the accreditation program from the American College of Surgeons to the Joint Commission. The event proclaims the complexity of the program and the determination to invoke all possible aid in its future expansion. The transfer is a recognition of the increased stature and influence of the American Hospital Association. We admit it to share in responsibility with the four great medical associations, the American College of Surgeons, the American College of Physicians, the American Medical Association and the Canadian Medical Association.

The inclusion of lay trustees of hospitals on the Commission emphasizes the duty of those charged with the government of hospitals. The talents assembled on the Commission illustrate the essential position of the hospital in society. It is not merely a workshop for doctors, graciously provided by public or private benefactors. It is not merely a challenging opportunity for the energy and philanthropy of the man of business. It is not just a hostel for the indisposed, to be operated with the rigid efficiency of hotel management. It is a highly developed servant of society, in which all conflicting interests must be resolved within the single rule of what is best for the patient—and therefore best for the public.

When we contemplate a hospital we like to envision a building of beauty and strength, whether it be large or small, to inspire the confidence and lift the morale of the patients. We like to envision the best and most modern equipment for operating rooms, obstetrical rooms, laboratories, x-rays, physical therapy, clinical and emergency treatment, equipment for diet, for cleansing, for the many services rendered the patient. We think of the safety of the patient. He must be protected against fire and other physical hazard.

As we think of the building and its equipment, we must think far more of the people who labor in the hospital and make it what it is—many different kinds of people—doctors, nurses, administrators, technicians, bookkeepers, cooks and even the good women who scrub the floors—all essential to the successful operation of a modern hospital.

It is with the evaluation of these servants of the sick, the hospital personnel, and the standards to be applied to them, their qualifications and their work, that the accreditation must be primarily concerned.

Read at the ceremony conveying the Hospital Standardization Program to the Joint Commission on Accreditation of Hospitals, Chicago, Dec. 6, 1952.

Education, training and ability are essential to all skills, but vastly more essential where human life is at stake.

Ability to work in harmony with others is an important requirement. The hospital organization is a team and there are few places in a hospital for even highly trained and able people who cannot play on the team.

In no field of human endeavor is integrity as important as it is in the care of the sick and the injured. Without integrity all else is meaningless. The patient is at the mercy of those to whom he applies for help. He can be neglected, he can be injured, he can be exploited, without, in most instances, being aware of it. Opportunities for evil are many, and chances of detection few. The need for integrity is imperative—integrity in the nurse as she measures a dose of medicine, as she checks the time and pressure in a sterilizer; in the cook as he prepares a special diet; in the engineer as he repairs a piece of equipment; in the administrator as he purchases food and supplies; in the laundry worker as he cleanses infected linens.

Above all, there must be integrity in the governing board and in the medical staff. Trustees of a hospital are faced with many problems. A high degree of integrity is required to give more weight to the welfare of patients than to the budget. To exclude friendship and other personal considerations from appointments to positions in the hospital requires integrity.

The standard of integrity must be set by the medical staff—both as individuals and as a group. The doctor is the central figure in the drama of medical care. All else is but to help, to assist him to do his best to achieve the best possible results. No matter how much he must trust to others, the doctor is the custodian of the welfare of the patient, his is the ultimate responsibility for the patient. More often than not it is the doctor who chooses the hospital for the patient. In so doing, he pledges to the patient the best obtainable care. If he wilfully condones practices which lower the quality of care, he sins against both the patient and the hospital.

In the acceptance of the program, you, the members of the Joint Commission on Accreditation, must give an accounting to millions of patients of today and of tomorrow. The lives of patients may well depend upon the standards you fix and enforce. A great trust is imposed in your hands.

BUREAU OF MEDICAL ECONOMIC RESEARCH

HOW MUCH MEDICAL DEBT?

Frank G. Dickinson, Ph.D.

According to a recent study of a government agency, about 19% of all spending units reported debts in 1952 to physicians, dentists, and hospitals for dental and medical services. The average debt amounted to $105 and the median to $50. These data were compiled in the latest *Survey of Consumer Finances*, which is annually conducted by the Board of Governors of the Federal Reserve System with the aid of the Survey Research Center of the University of Michigan.

The results of the 1952 survey were published in the July, August, and September issues of the *Federal Reserve Bulletin*. The survey is based on a sample consisting of approximately 2,800 interviews with persons representing consumer spending units. These units are defined as all persons living in the same dwelling and related by blood, marriage, or adoption who pooled their incomes for their major items of expense. They number 53.1 million in the United States today as contrasted with 47.0 million families. (Some family units consist of more than one spending unit because adult children, parents, or other relatives, even though they live in the same dwelling, do not necessarily pool their incomes with that of the head of the family. Hence, the number of spending units in the nation exceeds the number of families.) A specific question on medical debt was included in the survey questionnaire for the first time in 1952.

What does this new information show? According to an article appearing in the Oct. 17 issue of *U. S. News & World Report* this debt represents unpaid physicians' bills. The article is entitled "Doctor Bills Pile Up: How Can Families Pay." It quotes the $105 average debt of those spending units having debt and the total medical debt of one billion dollars and then states: "Doctors have a problem in collecting this considerable portion of their income." The article further states: "Nearly one-third of those families in which the family head is less than 45 years old and children are under 18 owes medical bills." The article implies that these are appalling conditions.

The *U. S. News & World Report* article apparently confuses physicians' bills and medical bills. The *Federal Reserve Bulletin* clearly states that unpaid medical bills are for physicians, dentists, and hospitals—not physicians only. It is well known that expenditures for physicians' services account for less than one-third of the total medical bill. It can be assumed, of course, that unpaid bills for physicians would be a somewhat greater proportion since the physician is traditionally the last to be paid.

The substitution of physicians' unpaid bills for all unpaid medical bills is not the serious error of the magazine article. More important is the implication that medical debt of the amount stated is an acute problem. The Board of Governors of the Federal Reserve System, in addition to the yearly survey of consumer finances, compiles monthly debt statistics. These statistics indicate that service debt or credit constitutes about 5% of all consumer debt. Medical debt represents about three-quarters of service credit.[1] Medical debt, then, apparently constitutes from 4 and 5% of all consumer debt. This should be no startling revelation. With medical expenditures being equal to slightly more than 4% of total personal consumer expenditures for the past 20 years (United States Department of Commerce), it would be expected that medical debt would equal roughly the same percentage of all consumer debt. As a matter of fact, it can be argued that the unpaid medical bill should be greater than average because of the public's negative approach to such bills. People generally buy what they desire first and leave payments for an unwanted illness to a later date.

The concentration of medical debt among young families with children is also as expected. Previous studies have shown that it is the young families who incur the greatest medical expenses, chiefly as a result of the cost of childbearing. Those who have the greatest expenditures would be expected to have a corresponding share of the debt. As the *U. S. News & World Report* article observes, young families generally have small to moderate incomes and relatively greater medical debt. But it is well known that the expenses of childbirth and infancy come at a time when expenses for clothing, food, and other items are relatively low. The medical debt incurred by these families in relation to their medical expenditures might well be the same as that of any age group. The percentage of their incomes spent on other items and the debt for these items is likely to be lower than that of older groups.

The sample study of the Board of Governors is important in that there is now available a more complete picture of the financial aspects of medical care. The Department of Commerce has for some years annually reported data on national consumer expenditures for medical care that have permitted an understanding of the place of medical care in the consumer's budget. The Bureau of Labor Statistics publishes valuable information on medical care prices based on a sample of families with moderate income in 34 large cities. The new data on medical debt provide us with some information on another important aspect of medical economics. As the Board of Governors of the Federal Reserve System plans to improve and extend its sampling of medical debt, its annual survey of consumer finances will become an increasingly important source of information.

Director, Bureau of Medical Economic Research.

1. In the monthly series, data are derived from lenders in contrast to the annual survey based on reports of consumers. The Board of Governors nevertheless believes that the definition used in the monthly series approximates that of the information received in the 1952 survey and intends to incorporate this information in its revision of the monthly consumer credit series. In estimating total consumer debt in the annual survey, difficulty was encountered in trying to separate debts arising from the farm and business activity of consumers from debts incurred for consumption. While the board intends to eliminate this problem in future annual surveys, for the present it is necessary to use the monthly series for the purpose of making percentage comparisons.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Otolaryngology, Chicago

56:361-470 (Oct.) 1952

Analysis of Hearing Loss Patterns in Rural Illinois School System: Study of Ears Receiving Medical Treatment. E. T. Curry.—p. 361.
Electrolytes and Noise Susceptibility. N. Cook.—p. 367.
Discussion of Acoustic Neurinoma with Case Presentation. E. H. Rockowitz and G. G. Lerner.—p. 372.
Nonchromaffin Paraganglioma (Glomus Jugulare Tumor) of Middle Ear. J. A. Cleary.—p. 378.
*Clinical Evaluation of Tracheotomy in Respiratory Complications of Poliomyelitis. H. H. Harris.—p. 385.
New Mucous Membrane Flap for Dacryocystorhinostomy. L. T. Jones and G. L. Boyden.—p. 405.
Cytologic Examination: Diagnostic Aid in Malignant Tumor of Antrum. B. W. Armstrong.—p. 409.
Cardiac Arrest and Resuscitation from View-Point of Otolaryngologist W. J. Hitschler.—p. 416.
Reconstructive Surgery of External Ear. H. May.—p. 421.
Chewing Method as Therapy: Discussion with Some Philosophical Conclusions. E. Froeschels.—p. 427.
*Treatment of Tuberculosis of Larynx: Comparative Study of Streptomycin, Paraaminosalicylic Acid, and Tibione. J. G. Gilbert and J. S. Aronoff.—p. 435.

Tracheotomy in Poliomyelitis.—Respiratory failure in poliomyelitis may be due to paralysis of the muscles of respiration, involvement of the respiratory center, or pulmonary aspiration, laryngeal spasm, and pulmonary edema. Harris describes his experience with tracheotomy in the management of these respiratory complications. During 1950 and part of 1951, a total of 270 patients with poliomyelitis were admitted to the hospital. There were 50 with bulbar, bulbospinal, or spinal poliomyelitis, and 28 of these patients had severe breathing difficulty. Tracheotomy was done in 15 of these patients. During 1950, when 11 of the 15 tracheotomies were done, the intervention was postponed until clear-cut indications were present. Only 4 of these 11 patients survived. In 1951, when tracheotomy was done earlier, before cyanosis was evident, in four patients, all four survived. Pulmonary complications and anoxia can be minimized by tracheotomy before pulmonary complications develop, for once these appear, the value of tracheotomy decreases. In bulbar poliomyelitis tracheotomy is indicated for patients with adductor paralysis of the vocal cords, especially in those who have difficulty in swallowing or who are listless or in coma. The tracheotomy tube was helpful when the patient had to relearn how to swallow; aspiration frequently took place, and suction could be carried out easily. Tracheotomy is most important for patients with bulbospinal poliomyelitis who have respiratory paralysis and require a respirator; in these the recovery rate seems to be in direct proportion to the number of tracheotomies done, but the tracheotomy must be carried out early. In patients with spinal poliomyelitis and respiratory paralysis who require a respirator, tracheotomy may be valuable when done early to coordinate swallowing mechanisms with the phases of the respirator or when coma exists.

Treatment of Tuberculosis of Larynx.—Results were surveyed in patients with tuberculosis of the larynx treated with streptomycin, *p*-aminosalicylic acid, or "tibione" (4-acetylaminobenzaldehyde thiosemicarbasone). The 136 patients treated with streptomycin had the greatest percentage of primary healing, the most rapid healing, and the smallest percentage of reactivations. The 21 patients treated with *p*-aminosalicylic acid showed less favorable results, while the 20 patients treated with "tibione" showed the poorest results, this drug being almost useless. Healing of a tuberculous larynx usually led to a much-improved general clinical status, despite the absence of change in the roentgenologic picture of the chest. In 13 cases, healing of the larynx allowed the use of endotracheal anesthesia and thus permitted excision of the pulmonary lesion. Clinical studies failed to support the deductions drawn from resistance tests performed solely with the tubercle bacilli found in the sputums. Studies are being performed on the tubercle bacilli obtained from the cavities and pleural space after excisional surgery. Two tuberculous larynxes that had been treated with streptomycin were obtained at necropsy. In one case healing by fibrosis had taken place, whereas in the other case streptomycin had failed to effect healing. *p*-Aminosalicylic acid has no significant toxicity. Streptomycin in doses of 1 gm. a day or less caused neurotoxic symptoms referable to the vestibular system in a small percentage of cases but almost no hearing loss. "Tibione," however seemed more toxic than reported by German investigators.

American Heart Journal, St. Louis

44:485-644 (Oct.) 1952

Occurrence in Paroxysmal Ventricular Tachycardia of Ventricular Complexes Transitional in Shape to Sinoauricular Beats: Diagnostic Aid. W. Dressler and H. Roesler.—p. 485.
T Wave of Unipolar Precordial Electrocardiogram in Normal Adult Negro Subjects. D. H. Keller and J. B. Johnson.—p. 494.
*Auricular Fibrillation: Hemodynamic Studies Before and After Conversion with Quinidine. W. R. Hansen, R. L. McClendon and J. M. Kinsman.—p. 499.
Circulatory and Ventilatory Changes in Chronic Pulmonary Disease as Affected by Lanatoside C. F. D. Gray Jr., M. H. Williams Jr., and F. G. Gray.—p. 517.
Esophageal Pressure Pulse Patterns (Esophageal Piezocardiogram). I. Experimental Observations. R. P. Lasser and L. Loewe.—p. 531.
Low Frequency Tracings of Precordium and Epigastrium in Normal Subjects and Cardiac Patients. A. A. Luisada and G. Magri.—p. 545.
Observations on Elasticity of Pulmonary Vasculature in Man. J. T. Doyle, R. A. Lee and E. B. Kelley.—p. 565.
Blood Bilirubin in Congestive Heart Failure. L. Schalm and W. A. H. Hoogenboom.—p. 571.
Congenital Heart Disease: Analysis of Electrocardiographic Patterns in 44 Patients with Elevated Right Ventricular Pressure. R. S. Cosby, D. C. Levinson, W. J. Zinn and others.—p. 581.
Asymptomatic Pulmonary Arteriovenous Fistula: Report of Two Cases Surgically Treated. M. J. Freedman, N. M. Hensler and B. E. Pollock.—p. 594.
Studies in Mitral Stenosis. III. Observations on Incidence and Distribution of Cerebral Emboli with Regard to Possibilities of Their Prevention During Operative Procedures. P. Hall, S. J. Dencker and G. Biörck.—p. 600.
Results Over a Two-Year Period on Three Experimental Diuretics Administered Orally to Patients with Cardiac Failure. J. H. Moyer, C. A. Handley and I. Wilford.—p. 608.
Therapeutic and Toxic Effects of New Oral Diuretic (1-Prophyl-3-Ethyl-6-Aminouracil). E. Hellman, R. Altchek and C. D. Enselberg.—p. 615.
Clinical Evaluation of Treatment of Hypertension with Dihydrogenated Ergotoxine Alkaloids. G. C. Sutton, W. Buckingham, R. D. Brown and D. C. Sutton.—p. 622.

Effect of Quinidine on Auricular Fibrillation.—The use of quinidine to restore sinus rhythm in chronic fibrillation associated with severe heart disease has been regarded as contraindicated, particularly in patients whose ventricular rate has been kept slow by digitalization. The danger of embolism on restoration of regular rhythm and the fear of cardiac arrest have been the chief factors in perpetuating this opinion. Little attention has been given to the hemodynamic alterations that follow the change from auricular fibrillation to sinus rhythm. Hansen and his associates investigated these hemodynamic effects of restoration of sinus rhythm by quinidine in 14 patients. They employed catheterization of the right heart using a modified dye injection technique. Conversion of sinus rhythm by quinidine resulted in a significant rise in cardiac output and a decrease in pulmonary blood volume in the majority of patients. The observed decrease in mean radial artery pressure and the decrease in peripheral

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Titles marked with an asterisk (*) are abstracted.

resistance with a rise in cardiac output suggest a peripheral arteriolar effect of quinidine. The increase in rate of blood flow, the lower venous pressure, and the reduced right atrial pressure further demonstrate improvement in cardiovascular mechanics following resumption of sinus rhythm. The improvement of hemodynamic function in all patients suggests that quinidine sulfate is of definite value in the treatment of patients with chronic auricular fibrillation.

American J. Digestive Diseases, Fort Wayne, Ind.

19:309-340 (Oct.) 1952

Physical Examination of the Esophagus. E. D. Palmer.—p. 309.
*Antacids: Fact and Fancy. F. Steigmann, L. L. Hardt and S. Hyman.—p. 310.
Management of Diabetic Patient During Acute Infection. H. J. John.—p. 316.
Effect of Other Lipotropic Substances on Fate of Choline After Oral and Intravenous Administration. S. S. Waldstein and F. Steigmann.—p. 323.
Edematous Benign Hepatitis. E. Gautier and M. J. Demole.—p. 326.
*Early Effects of ACTH on Arterial and Venous Blood Glucose and on Renal Glucose Excretion. R. S. Jackson and M. Fabrykant.—p. 329.
Inhibition of Liver Xanthine Oxidase Activity in Rats. J. M. Beiler, M. Graff and G. J. Martin.—p. 333.

Antacids: Fact and Fancy.—Fasting ulcer patients were intubated with a Levine tube and their gastric contents were evacuated. Thereafter, the stomach contents were aspirated at 15 minute intervals until three additional samples were obtained. Then the subjects were given 0.1 mg. of histamine per 10 kg. of weight, and the aspirations were continued every 15 minutes for another 75 minutes. The next day the procedure was repeated, but the subjects were given an antacid by mouth simultaneously with the histamine injection. Twelve groups of antacids, a total of 37 drugs, were studied. Of the purely alkali substances, magnesium hydroxide and Sippy no. 1 powders had the greatest and longest action. Two cellulose substances showed acid neutralizing ability when combined with magnesium oxide, but alone they were only moderately effective. Some of the colloidal aluminum gels had a decided but short and others a moderate and prolonged antacid effect. Combinations of alkali with antisecretory substances were slightly more effective than other antacids. Some of the amino acid combinations had considerable and others only a minor antacid effect. Plant mucin produced a marked and prolonged antacid effect, and the addition of animal mucin increased this effect. Tissue extracts, such as duodenal mucosa extract, had a marked but short antacid effect, while enterogastrone given orally had no effect. Methantheline (banthine®) alone had no antacid effect. In keeping with the observation that the alkalis are efficient antacids, some proprietary combinations of alkali and magnesium trisilicate gave good immediate antacid results but also created rebound acidity. Clinical observations in association with the antacid studies indicate that some substances are better tolerated than others and thus produce at times better results, despite the fact that they do not produce complete neutralization of gastric acidity in the laboratory. The authors do not agree that some antacids are greatly superior to others. The ideal antacid has not been found.

Effects of Corticotropin on Blood Sugar.—It has been stated that the administration of corticotropin (ACTH) produces glycosuria, which has been ascribed to the inhibiting effect of the hormone on tubular reabsorption of glucose. Since most of the reported studies have dealt exclusively with venous blood sugar values, Jackson and Fabrykant found it difficult to accept their conclusions. The arterial and venous blood glucose levels do not maintain a constant relationship, and it is the arterial rather than the venous blood that is filtered at the glomerulus. They decided to investigate the changes produced by corticotropin in carbohydrate metabolism by measuring the arterial and venous glucose levels simultaneously with and without administration of large doses of glucose. Seven subjects were given a single 50 mg. dose of corticotropin, both with and without large doses of glucose orally. At this dosage level, the hormone failed to produce a consistent or significant increase in arterial blood glucose peaks in excess of those in control tests. A lowering of the renal threshold for glucose as a result of corticotropin administration was recorded in only one subject, who in the control test had glycosuria well correlated with arterial hyperglycemia. In a case of long-standing renal glycosuria a single dose of the hormone failed to augment significantly the urinary glucose excretion. Thus these data do not corroborate previous reports on renal glycosuria as an early effect of corticotropin.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

68:545-708 (Oct.) 1952

Place of American Radium Society in Progress of Modern Medicine. L. R. Cowan.—p. 545.
Discography: Technique, Indications and Evaluation of Normal and Abnormal Intervertebral Disc. R. B. Cloward and L. L. Buzaid.—p. 552.
Acromegaly and Contrasting Conditions: Notes on Roentgenography of Skull. S. Moore.—p. 565.
Skeletal Changes in Myelomatosis, Lymphosarcoma and Osteomyelosclerosis. U. Cocchi.—p. 570.
Pericardial Cysts. W. M. Loehr.—p. 584.
Roentgenological Aspects of Heart Catheterization: Normal and Abnormal Positions of Catheter Within Heart. J. Jorgens, J. LaBree, F. Adams and L. G. Rigler.—p. 610.
Roentgenographic Differentiation of Peripheral Arteriosclerosis. E. N. Barnum.—p. 619.
Pulmonary Embolism: Experimental Angiocardiographic Study. R. P. Lochhead, D. J. Roberts Jr. and C. T. Dotter.—p. 627.
Esophageal Ulcer in Infancy. H. Z. Mellins.—p. 634.
*Silicobezoar: Report of Case. O. E. Benell.—p. 639.
Biological Evaluation of Skin Effects of 23 Mev. Betatron. L. L. Haas, R. A. Harvey and J. S. Laughlin.—p. 644.

Silicobezoar.—A 69-year-old woman was hospitalized in May, 1950, with complaints of pain in the epigastrium radiating up into the throat, anorexia, vomiting of dark, black material, tarry bowel movements after a laxative, weakness, and dry tongue. In 1942 she had undergone surgical treatment for a large ventral hernia. A plain film of the abdomen showed a large opaque mass of the size and shape of the dilated stomach. The patient could not speak English, and it was thought that perhaps she had been given some barium elsewhere. When, however, this was disproved, a diagnosis of bezoar was made. A gastrotomy was done, and 2½ lb. (1134 gm.) of sand (dry weight) was removed. Several weeks later an anterior gastroenterostomy was done. About five months later an upper gastrointestinal tract examination showed on the four hour film all the evidences of a gastric carcinoma of a scirrhous type, with masses surrounding the pars media of the stomach, a mass in the liver, and a functioning gastroenterostomy. The examination was difficult because of the poor condition of the patient and lack of ability to cooperate. She died about seven months after the gastroenterostomy. It was learned that she ate sand as a child, and had eaten some in the fall prior to her 1950 admission. There is said to be an old Finnish custom of eating sand for indigestion and/or constipation. Perhaps, if little is ingested, it passes through without harm, but continued use of any large amount could probably cause enough irritation to produce an ulcer. A large amount of sand collecting in the stomach is sufficient to cause chronic irritation that could conceivably lead to carcinoma.

American Surgeon, Atlanta, Ga.

18:945-1038 (Oct.) 1952

Physiology of Anesthesia as Related to General Surgery. W. E. Bageant.—p. 945.
Duplications, Stenosis and Atresia in Infancy. H. C. Fisher.—p. 952.
Acute Solitary Diverticulitis of the Cecum. J. T. Ellis.—p. 958.
Evaluation of Management of Postoperative Anorectal Pain. I. E. Taylor.—p. 964.
Reconstructive Biliary Tract Surgery. A. W. Ulin, J. H. Entine and A. E. Pearce.—p. 970.
Carcinoma of Large Intestine. A. Street.—p. 980.
Surgical Management of Diverticulitis of the Colon. D. W. Smith.—p. 985.
*Diagnosis and Treatment of Certain Forms of Chronic Cystic Mastitis (Breast Dysplasia). M. M. Copeland.—p. 992.
Cyst of Pancreas, Further Observations on Treatment by Internal Drainage. J. F. Van Meter and J. B. Floyd Jr.—p. 1005.
The Discharging Nipple—Its Relation to Breast Cancer. P. D. Abramson and J. W. Tucker.—p. 1010.
Postpartum Care. D. M. Cox.—p. 1019.
Inguinal Hernia in Infancy and Early Childhood. B. Bradford Jr. and J. T. Jarrett.—p. 1023.

Chronic Cystic Mastitis.—Mammary dysplasia is neither inflammatory nor neoplastic, but is a manifestation of endocrine dysfunction. Progesterone acting in conjunction with estrogen seems closely associated with the growth of mammary lobules

during the premenstruum. The lobular buds proliferate during estrogenic stimulation; differentiate under the influence of luteal hormones; and secrete in response to lactogenic hormone of the anterior hypophysis. Periductal connective tissue is stimulated to growth during the estrogenic phase of development. In the luteal phase, the intralobular stroma is compressed or resorbed, but vascularity is greatly increased. The forms of mammary dysplasia known as chronic cystic mastitis are intimately related to the physiology of lobule formation and to the function of the corpus luteum. Mastodynia, that is, simple mammary nodosity with pain, is the commonest and least serious of the three forms of mammary dysplasia. The defective lobule formation accompanying this disorder is due to reduced function of the corpus luteum. In a five year follow-up of 350 cases of mastodynia only a single case of mammary carcinoma was found in aberrant breast tissue, which was apparently unrelated to the previous mastodynia. Endocrine therapy is unnecessary in most patients with this disorder. Reassurance that cancer does not exist, and an uplift brassiere for those with heavy breasts, is usually sufficient. If endocrine therapy is deemed necessary, progesterone should be given. Cystic disease is the second most common form of mammary dysplasia. Intense or unopposed estrogen stimulus seems to result in the formation of cysts. Only five cases of carcinoma occurred in 445 patients with macrocystic disease who were followed for five years. Thus, while the incidence of carcinoma is twice the normal rate, it is still low enough to make conservative procedures the treatment of choice, including aspiration of the cyst, surgical excision of the cyst, and, in selected cases, endocrine therapy. Adenosis of the breast, or Schimmelbusch's disease, is the most serious but the least common of the three forms of breast dysplasia. It is characterized by the occurrence of multiple nodules in one or both breasts. Pain is a feature in about one-third of the patients. Most of the women with this disorder are childless and have a tendency to irregular menstrual cycles. Surgical investigation of all doubtful nodules is essential, and, if cancer is detected, radical mastectomy must be carried out. Aspiration of cysts may be necessary to obliterate them. Progesterone is effective for symptomatic relief in some of the cases, but estrogen therapy is unsafe. The nodulations remain unaffected by endocrine therapy in the majority of patients, but pregnancy has caused subsidence of the disorder in some cases.

Indiana State Medical Assn. Journal, Indianapolis

45:958-1120 (Oct.) 1952

Problem of the Burned Patient. W. H. Steffensen.—p. 989.
Basal Cell Carcinoma of Anus. C. E. Hall.—p. 994.
Dermatitis Hiemalis: Review of Literature. L. E. Gaul and G. B. Underwood.—p. 997.

45:1121-1220 (Nov.) 1952

Etiologic Diagnosis of Endogenous Uveitis. T. F. Schlaegel Jr.—p. 1137.
Diagnosis of Carcinoma of Breast—Early and Late. E. M. Bricker. —p. 1147.
Idiopathic Hypoprothrombinemia: Review of Literature and Report of New Case. R. A. Desjardins and K. E. Droulard.—p. 1153.

Journal of Applied Physiology, Washington, D. C.

5:99-146 (Sept.) 1952

Estimation of Heart Output from Electrokymographic Measurements in Human Subjects. G. C. Ring, M. J. Oppenheimer, H. M. Baier and others.—p. 99.
Simplified Calculation of Cardiac Output from Dye Dilution Curves Recorded by Oximeter. H. R. Warner and E. H. Wood.—p. 111.
Method for Measuring Radiant Temperatures of Environment. A. M. Stoll and J. D. Hardy.—p. 117.
Spectrophotometric Oxygen Determination on Whole Blood Samples. Apparent Increase in Oxyhemoglobin Under High Oxygen Tensions. J. B. Hickam and R. Frayser.—p. 125.
Caloric Requirements of Man in Cold Climates: Theoretical Consideration. A. P. Webster.—p. 134.
Ascorbic Acid and Acclimatization to Cold in Monkeys. L. P. Dugal and G. Fortier.—p. 143.

Journal of Immunology, Baltimore

69:373-470 (Oct.) 1952

Properties of Scarlet Fever Toxin of NY5 Strain. A. H. Stock and E. Verney.—p. 373.
Experiments with Teschen Disease (Virus Encephalomyelitis of Swine). D. M. Horstmann.—p. 379.
Identification of Coxsackie Viruses by Immunological Methods and Their Classification into 16 Antigenically Distinct Types. G. Contreras, V. H. Barnett and J. L. Melnick.—p. 395.
Studies on Reactions of Incomplete Rh Antibodies with Enzyme-Treated Rh Positive Red Cells. H. Zwicker, L. Giordano and R. E. Hoyt. —p. 415.
Precipitin Production in Chickens. VIII. Comparison of Effect of Salt Concentration on Precipitate Formation of Pheasant, Owl, and Chicken Antisera. M. Goodman and H. R. Wolfe.—p. 423.
Cysteine-Activated Proteinase of Clostridium Histolyticum. I. H. Lepow, S. Katz, J. Pensky and L. Pillemer.—p. 435.
Influence of Chemicals on Propagation of Poliomyelitis Virus in Tissue Culture. G. C. Brown.—p. 441.
Role of Heat-Stable Antigen in Serological Identification of Proteolytic Clostridia. J. W. Mandia.—p. 451.
Deposition of Small Doses of Injected Antigen in Rabbits. C. F. Cramp-ton and F. Haurowitz.—p. 457.
Toxicity of NDV for Mouse Lungs. F. M. Davenport.—p. 461.

Mental Hygiene, Albany, N. Y.

36:529-712 (Oct.) 1952. Partial Index

Role of Group Therapy in Preventive Psychiatry. W. C. Hulse.—p. 531.
Adolescence of Corrective Therapy. J. E. Davis.—p. 548.
Mental-Hygiene Clinic in an Organized Health Department. E. C. Maril. —p. 560.
Developing Mental-Hygiene Curriculum in Public-School System. J. Hertzman.—p. 569.
Misuse and Abuse of Certain Mental-Health Concepts. E. J. Simburg. —p. 589.
Mental-Hygiene Contributions to Resettlement of Immigrants in Israel. G. Caplan.—p. 607.
Rates of Discharge and Rates of Mortality Among First Admissions to New York Civil State Hospitals: Second Paper. B. Malzberg.—p. 618.

New England Journal of Medicine, Boston

247:541-584 (Oct. 9) 1952

*Treatment of Meningitis Due to Haemophilus Influenzae: Use of Chloromycetin and Sulfadiazine. S. Ross, E. C. Rice, F. G. Burke and others.—p. 541.
*Metabolic Studies Following Total Pancreatectomy for Retroperitoneal Leiomyosarcoma. G. L. Nardi.—p. 548.
Susceptibility to Diphtheria Among Elderly Persons: Immunization by Intracutaneous Administration of Toxoid. H. D. Brainerd, W. Kiyasu, M. Scaparone and L. O'Gara.—p. 550.
Serious Recurrent Injuries of Athletes: Contraindications to Further Competitive Participation. A. Thorndike.—p. 554.
Antimicrobial Treatment for Viral and Related Infections. II. Antibiotic Treatment of Acute Respiratory Infections and Influenza. M. Finland. —p. 557.
Quinine for Relief of Paresthesia of Undetermined Origin. A. S. Johnson. —p. 568.

Haemophilus Influenzae Meningitis.—Chloramphenicol (chloromycetin®) combined with sulfadiazine was employed in the treatment of 15 children between the ages of two months and four years with meningitis due to Haemophilus influenzae. Of the 15 patients, 3 were regarded as critically, 7 as acutely, and the remaining 5 as moderately ill. Chloramphenicol in a microcrystalline form diluted in isotonic sodium chloride solution was administered intramuscularly initially because of the simplicity afforded by the parenteral route in acutely ill children. Preliminary absorption studies in normal children indicated that, in those less than two years of age, a single intramuscular injection of this suspension in a dose ranging from 100 to 150 mg. per kilogram of body weight will produce adequate blood titers for 24 hours or longer. Consequently, this dose was given at intervals of 12 to 24 hours during the first three or four days after admission, followed by a subsequent change to oral administration of chloramphenicol in a dose of 100 to 150 mg. per kilogram of body weight per day in a four-hour to six-hour divided dose schedule. Chloramphenicol palmitate was used as the oral preparation, and is recommended because of its palatability and ease of administration to children. The average total duration of chloramphenicol therapy was 9.5 days. The total amount of chloramphenicol varied from 12 to 42 gm. Sulfadiazine was given in average doses of 0.30 to 0.4 gm. per kilogram of body weight every 24 hours during the acute phase and 0.15 to 0.30 gm. during the convalescent period. The duration of sulfa-

diazine therapy ranged from 3 to 12 days. The length of hospitalization ranged from 10 to 56 days. Two of the 15 patients died and 13 recovered. The deaths occurred in a 2-month-old and in a 12-month-old infant, who had been ill for 9 and 10 days, respectively, prior to hospital admission. One patient who recovered showed some transitory weakness of the lower extremities. Hematological studies should be done frequently during the course of chloramphenicol administration. The desirability of simultaneous administration of sulfadiazine requires further investigation.

Total Pancreatectomy.—Total pancreatectomy was performed as part of a radical excision of a retroperitoneal leiomyosarcoma in a 33-year-old man. The patient survived for one year. Metabolic studies carried out during this period revealed development of the "brittle" type of diabetes mellitus that necessitated ingestion of only 20 units of insulin daily. There was no fatty infiltration of the liver. Radioactive phospholipid studies suggested that absence of the pancreas in man does not result in abnormalities of phospholipid metabolism as reported in dogs. The patient's nutritional status was better without pancreatin than with it. Serum amylase and lipase were repeatedly present in normal concentrations after total pancreatectomy.

Psychosomatic Medicine, New York

14:337-430 (Sept.-Oct.) 1952

Psychological Aspects of Reducing. H. Bruch.—p. 337.
Autonomic Nervous System Test of Prognostic Significance in Relation to Electroshock Treatment. D. H. Funkenstein, M. Greenblatt and H. C. Solomon.—p. 347.
Effects of ACTH and Cortisone on Mood and Mentation. T. Lidz, J. D. Carter, B. I. Lewis and C. Surratt.—p. 363.
Mephenesin in Anxiety-Tension States. L. Paul.—p. 378.
Frontal Lobe Surgery in Treatment of Pain, with Consideration of Postoperative Psychological Changes. F. Bonner, S. Cobb, W. H. Sweet and J. C. White.—p. 383.
Influence of Prefrontal Lobotomy on Social Interaction in Monkey Group. E. B. Brody and H. E. Rosvold.—p. 406.

Surgery, Gynecology and Obstetrics, Chicago

95:401-528 (Oct.) 1952

Liver Blood Flow, Hepatic Glucose Production, and Splanchnic Oxygen Consumption in Normal Dogs and Following Eck Fistula. Liver Blood Flow Before and After Splenectomy. E. B. Hallett, G. W. Holton, J. C. S. Paterson and J. A. Schilling.—p. 401.
Technique and Effects of Portacaval Anastomosis (Eck Fistula). J. Markowitz, W. Lotto, J. Archibald and H. G. Downie.—p. 407.
Comparison of Cecostomy and Transverse Colostomy in Complete Colon Obstruction. J. H. Albers and L. L. Smith.—p. 410.
Experiences with Hip Prostheses. J. S. Donaldson, H. H. Sankey and W. F. Donaldson.—p. 416.
*Prophylactic and Therapeutic Value of Hydergine in High Altitude Frostbite. L. A. Hurley and A. R. Buchanan.—p. 423.
Common Duct Exploration for Stones. F. Glenn.—p. 431.
Relationship of Postcholecystectomy Disturbances to Bacterial Sensitivity. W. K. Jennings, L. R. Ortega and L. Braslow.—p. 439.
Inhibitory Effect of Cortisone on Strictures of Urological Tract. R. Baker, D. Govan and J. Huffer.—p. 446.
Surgical Treatment of Chronic Hidradenitis Suppurativa. H. Conway, R. B. Stark, S. Climo and others.—p. 455.
In Vivo Effects of Clostridium Welchii Lecithinase. W. E. Furr Jr., R. V. Bourdeau, H. D. Roach and H. Laufman.—p. 465.
*Acute Adhesive Ileus: Study of 412 Cases with Particular Reference to Abuse of Tube Decompression in Treatment. W. F. Becker.—p. 472.
*Pulmonary Function Before and at Intervals After Surgical Decortication of Lung. W. E. Patton, T. R. Watson Jr. and E. A. Gaensler.—p. 477.
Secretory Disease and Plasma Cell Mastitis in Female Breast: Roentgenologic and Pathologic Studies. J. Gershon-Cohen and H. Ingleby.—p. 497.
Thrombosis of Terminal Aorta. F. V. Theis.—p. 505.
Retroperitoneal Hemorrhage Complicating Pregnancy. B. P. Zummo, P. C. Williams and M. Uznanski.—p. 512.

"Hydergine" in High Altitude Frostbite.—Aviation experience in World War II emphasized the seriousness of a frostbite syndrome, which resulted from exposure to extreme degrees of cold at high altitudes and produced some degree of anoxia at the time of exposure. If high altitude frostbite can be considered as being due to intense vasospastic activity, then tissue damage should be prevented by blocking this reflex during exposure to cold. In this study, "hydergine," a combination of dihydrogenated ergot alkaloids and an effective adrenergic blocking agent, was administered prophylactically to white rats before exposure to a standard cold injury under conditions simulating an altitude of 25,000 feet. Twenty animals received the drug subcutaneously, and 10 animals were given an oral preparation by means of a stomach tube. Another group of 10 was treated with "hydergine" subcutaneously after freezing and a last group of 20 animals served as controls. The therapeutic results in each treated group, when compared with the end results in untreated controls, were statistically significant. The mean percentage tail loss in the groups receiving either oral or subcutaneous "hydergine" prophylactically was significantly less than the mean percentage of tail loss sustained by the group receiving the dihydrogenated alkaloids after freezing. Optimum results can be anticipated if therapy is instituted early or before thrombosis has taken place.

Abuse of Tube Decompression in Adhesive Ileus.—The belief that nonsurgical intestinal intubation is suitable treatment for acute intestinal obstruction due to adhesions is still prevalent. Such a therapeutic concept presupposes the existence of absolute diagnostic criteria for differentiating simple and strangulated obstructions. On the basis of analysis of 412 cases of acute adhesive ileus observed at the Charity Hospital in New Orleans, Becker shows that the absence or presence of fever, tachycardia, leukocytosis, a palpable mass, and signs of peritoneal irritation do not suffice to differentiate these two varieties of obstruction. He stresses that acute intestinal obstruction due to old adhesions should be treated by early operation. The preoperative preparation of the patient by suction applied to a long intestinal decompression tube, and the correction of fluid, electrolyte, and blood volume deficits can usually be effected in less than six hours. Intestinal obstruction due to recent adhesions will usually respond to suction, but conservative therapy must be employed with great caution, and, unless evidence or recovery is prompt and unequivocal, operation is in order. The mortality rate in this series of 412 cases of acute adhesive ileus was 11.8%. In the 52 cases in which tube decompression was abused, the mortality rate was 38.4%.

Pulmonary Function After Surgical Decortication.—Fourteen patients with unilateral constrictive pleural disease and hydropneumothorax were studied before and at intervals up to three years after surgical decortication of the lung. Over-all pulmonary function was evaluated by maximum breathing capacity, vital capacity, and exercise ventilation. Participation of affected side was determined by bronchospirometry. Preoperative studies revealed ventilatory insufficiency in proportion to the amount of collapse seen on the roentgenogram. Restoration of function after decortication was closely related to the presence or absence of preexistent parenchymal disease. Early postoperative studies showed moderate improvement of function in patients with no or minimal parenchymal disease, and a decrease in function in patients with moderate or advanced disease. Serial studies performed up to three years after operation showed a progressive gain in function. Patients with little parenchymal disease ultimately showed a mean increase of 47% in maximum breathing capacity and 31% increase of vital capacity. Patients with advanced parenchymal disease did not overcome the sharp reduction of function noted during the early postoperative period. In these patients the relative participation by the diseased lung was not altered by decortication. The ultimate gain of function was not influenced by the preoperative duration of pulmonary collapse, by the presence or absence of infection in the pleural fluid, or by the purulence of the fluid. The gain of function bore a close relationship to the amount of reexpansion seen in the chest films. Patients in whom only visceral decortication was done showed improvement comparable to that seen in patients with complete visceral and parietal decortication.

West Virginia Medical Journal, Charleston

48:313-346 (Nov.) 1952

Coronary Artery Disease—Its Evaluation and Management. J. R. Beckwith.—p. 313.
Ballistocardiography as Office Procedure. I. E. Buff.—p. 325.
Space Medicine. L. H. Bauer.—p. 326.
Early Recognition of Prostatic Disease by General Practitioner. T. R. Fetter.—p. 328.

FOREIGN

Annals of Rheumatic Diseases, London

2:193-256 (Sept.) 1952

Stenosing Tenosynovitis. G. Palmborg.—p. 193.
Rehabilitation and Treatment by Movement of Contractures in Rheumatoid Arthritis. G. Edström.—p. 196.
Effect of Placental "Serum" in Rheumatoid Arthritis. J. Simson and J. J. Bunim.—p. 204.
Gold Therapy and Neutral 17-Ketosteroid Excretion in Rheumatoid Arthritis. J. Bruce and R. Mackay.—p. 206.
Gold-Testing in Gold Treatment of Chronic Polyarthritis: Results of Continued Experiments. T. Svanberg.—p. 209.
Clinical "Assay" of Corticotrophin: Preliminary Comparison of Methods. B. M. Ansell and E. G. L. Bywaters.—p. 213.
Ulnar Deviation of Fingers. B. Lush.—p. 219.
Tuberculous Rheumatism: Report of Case. P. G. Dalgleish.—p. 222.
Comparative Effects of Cortisone, ACTH, and DOCA in Case of Rheumatoid Arthritis with Addison's Disease. P. Ellman and L. Cudkowicz. —p. 225.

Prensa Médica Argentina, Buenos Aires

39:2021-2084 (Aug. 29) 1952. **Partial Index**

*Syndrome of Meningeal Hemorrhage, Unilateral Headache and Ophthalmoplegia Due to Supraclinoid Aneurysm of Internal Carotid Artery. E. S. Mazzei, M. Bonafina and E. Dameno Jr.—p. 2023.
Bundle Branch Block. J. E. Israel.—p. 2039.
Primary Sarcoma of Esophagus: General Study. J. H. Resano and D. Hojman.—p. 2045.
Mesenteric Emphysema Due to Perforation of Subserosa of Small Intestine. H. J. Dorado.—p. 2057.
Classification of Psychogenic Dermatoses. J. A. Goldstein.—p. 2061.

Supraclinoid Aneurysm.—Supraclinoid aneurysm of the internal carotid artery is the cause of ophthalmoplegic hemicrania. Appearance of this syndrome calls for the performance of cerebral arteriography for early diagnosis and surgical treatment of the aneurysm. Rupture of the aneurysm produces subarachnoid hemorrhage, which has a mortality of 50%. The occurrence of ophthalmoplegic hemicrania in a patient who has previously had a meningeal hemorrhage suggests a diagnosis of supraclinoid aneurysm. Cerebral arteriography and surgical treatment, consisting in removal of the aneurysm after ligation of the artery, should be promptly resorted to, to prevent recurrence of the hemorrhage, which is fatal in almost all cases. In the case reported by the authors, a minor form of ophthalmoplegic headache appeared during convalescence from a subarachnoid hemorrhage. Arteriography showed a sacular aneurysm in the supraclinoid portion of the internal carotid artery. The aforementioned surgical treatment resulted in complete control of all the neurological and ocular symptoms.

Presse Médicale, Paris

60:1335-1354 (Oct. 8) 1952. **Partial Index**

*Obstetric Analysis of Electrical Potentials Produced by the Uterus in Labor (Electrohysterography). E. Lévy-Solal, P. Morin and F. Zacouto. —p. 1335.
Epidemiology of Brucellosis. J. Verge, M. Deparis and B. Antoine. —p. 1338.
Curarization by Rectal Route. J. Delay, J. Thuillier, J. de Montrémy and Y. Tardieu.—p. 1341.
*Cortisone, ACTH and Salicylates in Treatment of Rheumatic Fever and Similar Conditions. J. Roskam and H. Van Cauwenberge.—p. 1344.

Electrical Activity of Uterus in Labor.—The electrical potentials produced by the uterus in 100 women in labor were recorded with a cathode ray oscillograph. The study of these recordings showed that for maximum efficiency in delivery perfect intercellular coordination within the myometrium is indispensable. In the presence of such coordination the electrohysterographic tracings are characterized by sinusoid waves. In the absence of such coordination either hypertonic or hypotonic functional dystocia usually develops. Uterine hypertonia is characterized by electrical hyperactivity manifested by tracings of type C with completely irregular wave forms and no rest periods; these tracings demonstrate the existence of multiple partial foci of coordination acting independently. Antispasmodic therapy is justified in dystocia of this type. Hypotonic dystocia is characterized by complete intercellular incoordination manifested by permanent horizontal tracings of electrical inertia. Electrohysterography is the only reliable test for the detection of this type of dystocia, since palpation and mechanographic recordings of the uterine contractions are often misleading in that they may suggest a normal course of labor despite the fact that there is little or no progress in the dilatation of the cervix. Electrohysterography thus makes possible detection of functional dystocia in time to institute early treatment by slow intravenous infusion (20 to 30 drops per minute) of 5 units of posterior pituitary extract, preferably deprived of its hypertensor principle and diluted in 500 cc. of dextrose solution; the occurrence of secondary uterine hypertonia with edema and rigidity of the cervix might thus be prevented. Even after the appearance of these phenomena, the patient may be benefited by posterior pituitary infusion combined with administration of antispasmodics, provided treatment is instituted before edema and rigidity have become firmly established. Irreversible anatomic changes will thus be prevented. On the contrary, clinical uterine hypertonia associated with electrical hyperactivity of type C is a definite contraindication for the institution of oxytocic therapy.

Cortisone, Corticotropin, and Salicylates in Rheumatic Fever.—Investigations carried out by the authors in Liège provided additional evidence to support the authors' concept that the action of the salicylates in rheumatic fever depends on hypersecretion of reducing corticoids, which the salicylates promote. Experiments made on rats revealed that injections of salicylates entail the same biochemical results and exert the same effects on the blood and the tissues of the animals as the administration of corticotropin (ACTH), provided that the rats have not been subjected to adrenalectomy, hypophysectomy, or anesthesia with 5,5-diallylbarbituric acid (dial®). It was thus demonstrated that the pituitary-hypothalamus-adrenal cortex functional axis must be unimpaired to make the action of the salicylates possible. Rats that had been given a preliminary injection of N,N-dibenzyl-β-chloroethylamine (dibenamine®) hydrochloride, an adrenolytic with prolonged action, reacted to a subsequent injection of sodium salicylate exactly as the control animals; it was thus demonstrated that the salicylates do not exert their effect by inducing hypersecretion of epinephrine, which has been considered to be the usual mediator in stress. Injections of sodium salicylate in progressively reduced doses revealed the presence of a gradient in the responses of the organism of the rats to this drug; the maximum reaction occurred with a salicylate blood level similar to that which proved effective in rheumatic fever. Fifty patients with rheumatic fever were treated with large doses of acetylsalicylic acid (aspirin). Those patients in whom the clinical signs were only attenuated by this treatment and in whom the erythrocyte sedimentation rate remained accelerated, were given cortisone or corticotropin (ACTH) in addition to the initial large dose of acetylsalicylic acid. Instead of the usual dose of 300 mg. of cortisone on the first day, 200 mg. on the second day and then 100 mg. daily up to a total dose of 2 gm. in 14 days, cortisone was given in doses of only 150 mg., 100 mg., and 50 mg. or even 75, 50, and 25 mg. up to a total dose of 1 gm. or 0.5 gm. Highly satisfactory results were obtained with these small doses of cortisone, which previously had been considered ineffective. Hypercorticalism was observed in 5 of the 50 patients, who had received large doses of acetylsalicylic acid alone or combined with small doses of cortisone or corticotropin. In some of their patients the authors employed a new test resembling the Thorn test. This consisted of administration of 6 gm. of sodium salicylate in 60 gm. of diluted gooseberry syrup on an empty stomach. A 50% drop of eosinophils in the blood occurred in three patients in whom the Thorn test had been negative. Two of the three patients obtained satisfactory results from treatment with salicylates, while one was a therapeutic failure. A positive salicylate test is to be considered of prognostic significance with respect to intensive treatment of rheumatic fever with salicylates.

Revista Médica de Arequipa

3:1-26 (April-Aug.) 1952. **Partial Index**

*Primary Cancer of Body of Pancreas with Unusual Symptoms. G. Ballón Landa.—p. 1.
Glomus Tumor. J. Becerra de la Flor.—p. 4.
Asynergic Functional Disorders of Uterine Contraction: Schickele's Syndrome. J. Eguren Cáceres.—p. 9.

Primary Cancer of Pancreas.—Primary cancer of the body of the pancreas is rare. The subject of this report, a woman of 46, had calculous cholecystitis for 15 years and cancer of the pancreas for one year and a half. The only symptoms of cancer were abdominal pain and diarrhea. Pain in the upper region of the abdomen was dull and intermittent at first. Later in the course of the disease it was acute and constant and radiated to the left hypochondriac region and to the back. Diarrhea was intermittent in the early period of the disease and frequent and uncontrollable in the advanced period. The patient rapidly lost weight. Clinical examination, which included determination of amylase in the blood and the search for occult blood in the feces, gave negative results. Results of roentgen examination of the stomach, the duodenum, and the intestinal tract were also negative. Streptomycin and preparations of pancreas were ineffective. A clinical diagnosis of cancer of the pancreas and an exploratory laparotomy were not made. A primary carcinoma of the pancreas was found at necropsy. It involved the whole body and a portion of the head of the structure. It had adhesions to the duodenum and to the inferior vena cava. Multiple metastases were observed in the liver. The author advises early exploratory laparotomy in all patients who complain of pain in the upper region of the abdomen, when the cause is unknown and the patient is suffering with diarrhea and rapidly losing weight. An early diagnosis of cancer of the body of the pancreas is feasible from the results of laparotomy, as this form of cancer does not produce clinical symptoms and does not give roentgen signs of diagnostic value.

Semaine des Hôpitaux de Paris

28:2969-3010 (Oct. 6) 1952

*Asthma and Diencephalon; Clinical Observations and Therapeutic Experimentation. A. Jacquelin, J. Turiaf, M. Roman and J. Martinetti.—p. 2969.
Syndrome Consisting of Asthma, Endocrine-Genital Disorders, and Obesity in Women. A. Jacquelin, J. Turiaf, P. Blanchon and L. Zizine.—p. 2979.
Nervous Origin of Stenoses and of Dilatations of Bronchi in Asthma; Bronchoscopic and Bronchographic Study. J. Turiaf, Y. Rose and P. Marland.—p. 2984.
Bronchial Infection With or Without Pulmonary Shadows in Asthmatic Patients. J. Turiaf, P. Marland and Y. Rose.—p. 2991.

Asthma and Diencephalon.—According to the authors, two types of asthma may be distinguished: the "exogenous" type which depends on an extrinsic substance, such as pollen, dust or food, as the exciting agent, and the "endogenous" type, which is completely independent from environmental changes, seasons, food, and occurs at any time, depending only on intrinsic factors. In the exogenous type, the attack of asthma may be explained exclusively by the local antibody-antigen reaction, while in the endogenous type the higher nervous centers appear to play an important part. In some patients asthma is connected with a constitutional derangement of the diencephalothalamic region, in others the asthma may be aggravated by the fear of the occurrence of the attacks, i. e., by mental representation, and in still others the asthma may be elicited by a sudden emotional shock in the absence of any bronchopulmonary antecedent, abnormal sensitivity of the respiratory mucosa, or tuberculin allergy. In view of this pathogenic concept of asthma, a therapeutic trial was carried out on several asthmatic patients with intramuscular injections of 2 gm. of a completely deproteinized diencephalic extract. These injections caused vasomotor disturbances characterized by flushing of the face and attacks of asthma. On the contrary, of seven patients who were given a course of daily intramuscular injections of 0.50 to 1 gm. of the extract for 20 days, two remained free of attacks of asthma for several weeks and two others for several months. Roentgen irradiation of the diencephalon with 50 r once a week for 14 weeks was practiced in 28 asthmatic patients. Of the 28 patients, an attack of dyspnea was elicited in 13 by the first one, two, or three irradiations. This attack occurred between 6 to 24 hours after the irradiation. Sudden polyuria was observed in 8 of the 28 patients, and was preceded by oliguria in 1. Vasomotor disturbances with redness of face, headache, somnolence, or insomnia occurred occasionally and were only temporary. On the contrary, from the third, fourth, or fifth irradiation onward the attacks of asthma were abolished completely in 11 of the 28 patients. In six patients the incidence and the intensity of the attacks of asthma were considerably reduced. Three patients were temporarily improved, but within one month asthmatic attacks recurred with their previous rhythm. Two patients were threapeutic failures, and in the remaining six treatment was discontinued because of the intractability of the excessively nervous patients. The two therapeutic failures were patients whose clinical picture did not suggest any diencephalic participation. The patients who were benefited by irradiation treatment had frankly paroxysmal asthmatic attacks, intermittent dyspnea on effort, and eosinophilia. Improvement of the nervous condition occurred in 14 patients; there was a gain in body weight of 2 to 15 kg. One patient, in whom aggravation of the asthma had been associated with a pronounced increase in body weight, lost 16 kg. as a result of the irradiation. In two women menstruation was improved, and one man experienced a return of his sexual activity. Results obtained with the irradiation therapy seem to give strong support to the concept of central nervous system origin of asthma.

Wiener klinische Wochenschrift, Vienna

64:765-780 (Sept. 26) 1952

Peridural Anesthesia in Obstetrics. S. Kolonja and R. Ulm.—p. 769.
*Controlled Lowering of Blood Pressure and Its Significance in Surgical Intervention to Improve Hearing (Fenestration). E. Vyslonzil.—p. 772.
Melanosis Coli; Morphology, Pathogenesis and Experiment. A. Piringer-Kuchinka.—p. 775.

Controlled Hypotension in Labyrinthine Fenestration.—Labyrinthine fenestration was performed on 25 patients with otosclerosis whose blood pressure had been lowered by administration of hexamethonium. To keep the operative field dry, considerable lowering of blood pressure was required because the bone vessels, which are primarily involved, do not collapse. Patients in the fifth decade of life required less lowering of blood pressure than those between 25 and 40, in whom the blood pressure rises again rapidly because of autonomic nervous compensatory processes, and less than those over 60, who have general deficiency of vascular elasticity. By combining administration of the autonomic ganglion blocking agent with positioning of the patient with legs downward and head upward, even in the most refractory cases a dry operative field was obtained, with systolic values of 52 mm. of mercury. Lowering of blood pressure was instituted only at the time when surgical intervention on the horizontal semicircular canal itself was started, and hypotension was maintained for not more than 20 to 40 minutes, during which the plastic covering of the newly created fistula was accomplished without difficulty. Postoperatively the transient aggravation of hearing impairment was shortened and attenuated, there was no vomiting, and there was much less vertigo in the 25 patients in whom blood pressure was lowered during the operation than in 40 patients in whom it was not. The favorable results thus obtained by controlled hypotension may be due to the lowering of the cerebrospinal fluid pressure, favorable regulation of the disturbed postoperative conditions in the perilymph and endolymph, general diminution of central autonomic activity, and reduction of subjective and objective sequelae of vestibular stimulation. The behavior of the blood pressure in the cerebral vessels was ascertained by measuring the pressure in the central artery of the retina. In patients less than 50 years of age the systolic pressure was reduced 40 to 50%, while the diastolic pressure was reduced only 10 to 20%. This slight reduction of the diastolic pressure is to be considered as a protective mechanism of the blood supply of the brain. On the contrary, in patients aged over 50, the diastolic pressure of the central artery was lowered 60 to 65% and a diplopia of several hours duration resulted in one of these patients. In older patients, the author considers it safer to abandon pronounced lowering of blood pressure and absolute dryness of the operative field. Since there is little tendency to compensatory rise of blood pressure in these patients, considerable reduction of blood loss during the operation may be accomplished by thrombus formation in the presence of only slight lowering of the blood pressure.

BOOK REVIEWS

Zinsser's Textbook of Bacteriology. By David T. Smith, M.D., Professor of Bacteriology, Duke University School of Medicine, Durham, N. C., and others. Tenth edition. Cloth. $11. Pp. 1012, with 330 illustrations. Appleton-Century-Crofts, Inc., 35 W. 32nd St., New York 1. 1952.

In the present edition of this classic textbook all chapters are rewritten and the references brought up-to-date. Much emphasis is laid on the relationship of various antibiotics. Over 100 new illustrations have been added, and the important characteristics of the micro-organisms are put in bold-face type so that they are easily noticed. A review of previous editions of Zinsser's textbook shows the care and exactness that characterizes the writings of Zinsser, Hiss, Bayne-Jones, and Martin. The rewriting of the present volume has been carried out by the same desire for preciseness and scientific truth that made Zinsser's textbook outstanding 20 and 30 years ago. This book belongs not only in the hands of students and laboratory workers but also in the library of every physician who wishes to keep up with the progress of contemporary bacteriology.

Essentials of General Anæsthesia. By R. R. Macintosh, M.A., M.D., F.R.C.S., Nuffield Professor of Anæsthetics, University of Oxford, and Freda B. Bannister, M.A., M.D., D.A., Consultant Anæsthetist, Wolverhampton Group of Hospitals, Birmingham Regional Hospital Board, Birmingham, England. Fifth edition. Cloth. $8. Pp. 378, with 247 illustrations by M. C. McLarty. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1952.

This textbook was originally written to aid dental and medical students who seek an introduction to anesthesia, and secondarily for those practitioners who might desire to recall some of the essentials of general anesthesia. In this edition, a new chapter on curare and other muscle relaxants has been added, which was the chief purpose in preparing this revision. The material is presented in a clear, simple, and understandable style, so important in a discussion of the essentials of a subject. The descriptive figures and illustrations are excellently arranged, often in contrasting colors to aid in understanding. Numerous case reports are presented to further clarify the subject under discussion. The chapter on curare and other muscle relaxants is especially well written and alone justifies this revision.

Like many textbooks, however, it has its shortcomings. Certain subjects are inadequately covered; for example, in the discussion of manual methods of artificial respiration, Schafer's method is offered as the method of choice for an operator working single-handed. The arm-lift back-pressure method (modified after Holger-Nielson) is not mentioned, yet it has been adopted by the National Research Council of the United States as the most practical and the preferred method for general use. Similarly, in discussing the treatment of cardiac failure, the authors have considered only the abdominal approach to cardiac massage, while current literature favors the transthoracic approach. Otherwise, the book is a valuable addition to the library of the student or practitioner of anesthesia.

De aneurysmatibus: Opus posthumum. [By] Giovanni Maria Lancisi, 1654-1720. Aneurysms: The Latin text of Rome, 1745, revised, with translation and notes. By Wilmer Cave Wright. History of Medicine Series issued under auspices of Library of New York Academy of Medicine, no. 10. Cloth. $7.50. Pp. 362, with facsimile of original title page. The Macmillan Company, 60 Fifth Ave., New York 11, 1952.

Mrs. Wilmer Cave Wright, who unfortunately did not live to see her translation published, has rendered a real service to the field of medicine by preparing this first complete translation of Lancisi's "De aneurysmatibus." The first portion of the volume is given over to the life of Giovanni Maria Lancisi, physician to three popes and the greatest Italian clinician of the early 18th century. This section consists of a letter written by Assalto to inform Morgagni of the death of his friend and an excellent outline of the life of Lancisi with a splendid characterization of this outstanding man. This was an important age in medicine, and Lancisi numbered among his friends such imperishable names as Malpighi and Boerhaave, as well as many others. At the early age of 30, he was appointed to the chair of public anatomy at the University of Rome. He frequently complained that the popes placed such demands on his time that he was constantly interrupted in carrying out his fundamental work. Nevertheless, he achieved a reputation as one of the great teachers, and he states that he carried out "countless dissections and vivisections before large audiences of physicians and surgeons." He adds, "I was afraid one of these might forestall me and publish my work," a fear that is occasionally mentioned to this day.

The major portion of this volume is devoted to a presentation of Lancisi's lectures and of many fascinating case histories, which, presented with his clarity of thought and sound reasoning, make excellent reading. In addition to this, there is constant evidence that he was a wit and injected his humor into his scientific presentations, a technique that might be cultivated to a greater degree in our present medical schools.

Here one will find excellent definitions of aneurysms of the heart, aorta, and the carotid and other arteries, with careful consideration of etiological factors. His descriptions of cardiovascular syphilis, which he attributes to proficiency "in the wrestling school of Venus," are classic. Of particular interest is a discussion of traumatic aneurysms in contrast to aneurysms due to intrinsic weakening of the arterial walls or increased pressure from the contents of the vessels. Throughout the volume are to be found many aphorisms and expressions of the wisdom of this man that can be well taken to heart today: "Happy is the man whom the dangers of others make cautious." "I cannot refrain from expressing my bitter resentment against certain physicians who are in the habit of exaggerating a slight illness so that they may appear to have distinguished themselves the more."

Too often medical classics are considered to be dull reading and so lie neglected on the shelves of physicians and in libraries. This volume is a notable exception in that it is filled with many stimulating and even exciting case histories with autopsy findings that are beautifully presented, and one feels the enthusiasm that undoubtedly contributed markedly to Lancisi's reputation as a great teacher. The book is recommended reading for all physicians and especially for all students of cardiovascular diseases.

Le malattie del fegato e delle vie biliari. Volumi I e II. Di Giorgio Dominici, direttore dell'Istituto di clinica medica generale e terapia medica dell'Università di Perugia. Second edition. Cloth. Pp. 773; 775-1325, with 228 illustrations. Società editrice libraria, Via Cesare da Sesto, 15, Milan, 1952.

This book first appeared in 1947. The material has been thoroughly revised and brought up-to-date, so as to include all of the recent experimental and clinical contributions to this subject. Particularly valuable is the chapter on the physiology of the liver. The newer diagnostic methods, such as liver biopsy, peritoneoscopy, and catherization of the hepatic vein, are extensively discussed. The chapter on biological and clinical types of icterus and the chapter on functional studies of the liver are quite adequate. The various types of hepatitis recently described in the literature are given a thorough discussion. The therapy of liver and bile tract disease is discussed from the viewpoint of an internist. Surgical indications are discussed, but operative techniques are omitted. The bibliography, although extensive, is limited to the more recent and the more important contributions. The two volumes contain some 1,300 pages of text profusely illustrated with black and white and with color illustrations. The work is based on the author's extensive personal experience and on exhaustive study of the literature. It is a valuable contribution to the subject of liver and bile disease.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

QUERIES AND MINOR NOTES

DIABETIC BUS DRIVERS

To the Editor:—*Should men using insulin for diabetes be allowed to operate busses carrying passengers? What are the probabilities of diabetic coma or insulin shock in this type of case?* *John R. Pavia, M.D., Newark, N. J.*

Answer.—A diabetic using insulin, irrespective of the kind or amount, is subject to an insulin reaction. There is always the possibility of an error in measurement, exposure to unexpected exercise or unplanned omission of a meal. Therefore, a diabetic taking insulin should not drive a bus that carries passengers. Under unusual circumstances an exception might be made to the above rule, but such an exception should be extraordinarily rare.

In this connection a statement of the Committee on Employment of Diabetics of the American Diabetes Association, released in July, 1952, is apropos: "Diabetics are capable of performing any type of work for which they are physically, mentally, and educationally equipped. Those diabetics who are taking large doses of insulin should not, however, be assigned work in which hypoglycemic attacks might result in injury to themselves and others." The entire statement may be found in the July-August, 1952, issue of *Diabetes*, pages 336-337.

TREATMENT OF METHYL ALCOHOL POISONING

To the Editor:—*If after the ingestion of 6 to 8 oz. (200 to 250 cc.) of methyl alcohol, a man is not treated for 25 hours and then becomes ill, how good are his chances of recovery, and what is the correct treatment?* *M.D., California.*

Answer.—The ingestion of 6 to 8 oz. of methyl alcohol would ordinarily cause death in 24 to 36 hours, but death may be delayed to four days. As little as 1 to 2 oz. (30 to 60 cc.) has been reported to have caused death, while recovery has been reported following the drinking of more than 8 oz. (Peterson, F.; Haines, W. S., and Webster, R. W.: Legal Medicine and Toxicology, ed. 2, Philadelphia, W. B. Saunders Company, 1923). The treatment of methyl alcohol poisoning is based on the fact that methyl alcohol, although less intoxicating than ethyl alcohol, is slowly oxidized to formic acid, and it is the formic acid that is responsible for blindness and death; therefore, treatment should be aimed at the prevention of oxidation of the methyl alcohol. This may be accomplished by the administration of pectin, which apparently prevents the oxidation of methyl alcohol. Ethyl alcohol also inhibits the formation of formic acid from methanol and is therefore an excellent antidote. It must be given for several days, since methyl alcohol usually requires several days for its elimination. The fact that pectin may be present in the stomach when the methanol is ingested and that ethyl alcohol is often imbibed with methanol, may explain the great variation in the fatal dose and in the period before death. Supplementary treatment is aimed at the severe acidosis accompanying methanol poisoning. Røe (*Quart. J. Stud. Alcohol* **11**:107 [March] 1950) advises, in addition to ethyl alcohol therapy, the administration of adequate doses of sodium bicarbonate as early as possible and for as long as methanol remains in the body. The bicarbonate may be given intravenously. Keeney and Mellinkoff (*Ann. Int. Med.* **34**:331 [Feb.] 1951) advise that the urinary pH should reach 7.5 before treatment is stopped. These authors also advise administration of dextrose intravenously. Finally, spinal fluid containing methyl alcohol is usually under great pressure, and spinal fluid drainage is an important part of the treatment.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

SMALLPOX VACCINATION AND ENCEPHALITIS

To the Editor:—*What is the consensus regarding revaccination of persons who have had encephalomyelitis as a result of previous smallpox vaccination? I am concerned with a healthy 18-year-old boy who had severe spastic paralysis in infancy after a smallpox vaccination, with complete recovery.* *John A. Frantz, M.D., Montrose, Colo.*

Answer.—Unless the physician is intimately acquainted with the circumstances, he may doubt a history of "severe spastic paralysis in infancy" due to vaccination against smallpox. The occurrence of encephalitis caused by smallpox vaccination has been extremely rare in the United States. When it occurs, it generally happens in older persons. Most cases of encephalitis following vaccination against smallpox have been reported in the Scandinavian countries. In England, it was thought that young adults with primary vaccinations were the principal ones in whom this accident occurred. Notwithstanding the foregoing comments, it would seem inadvisable to vaccinate the boy concerned, if he has a typical vaccination scar, unless he is exposed to a known case of smallpox.

DEAD EMBRYO IN EARLY PREGNANCY

To the Editor:—*Is there a positive test for determining whether the fetus is dead in a patient who is two months pregnant and who has been bleeding for two weeks but has passed no definite tissue from the cervix? Of what value is the Aschheim-Zondek test as an indication for dilatation and curettage?* *Jerome C. Prusinski, M.D., Chicago.*

Answer.—There is no positive test to indicate the presence of a dead embryo in early pregnancy. Often, the embryo fails to develop or dies and slowly disintegrates, although the chorionic vesicle may remain attached to the decidua and retain its viability. Thus, a positive Aschheim-Zondek test does not mean a living embryo, but a negative test can be interpreted as indicating that the fetus is no longer viable. A patient who bleeds continuously for two weeks early in pregnancy in all likelihood has an imminent abortion and should have a dilatation and curettage. Several pelvic examinations done a week or 10 days apart will reveal that the uterus has failed to increase in size and that it has actually decreased and is much smaller than the duration of the amenorrhea would indicate. A speculum examination may reveal tissue in a patulous cervical canal. A negative pregnancy test is confirmatory evidence of a nonviable gestation.

ERYTHROBLASTOSIS

To the Editor:—*A pregnant woman has type rh' blood, and her husband has Rh-positive blood. Should this patient receive treatment with progesterone and diethylstilbestrol for prevention of erythroblastosis in the baby? Is the child of an rh' mother and an Rh-positive father as likely to have erythroblastosis as the child of an Rh-negative mother and an Rh-positive father?* *J. J. Johnson Jr., M.D., Las Vegas, N. M.*

Answer.—Administration of progesterone and diethylstilbestrol to a pregnant Rh-negative woman is of no value for the prevention of erythroblastosis in the baby. A woman of type rh' with an Rh-positive husband is just as likely to become sensitized and have an erythroblastotic baby as a type rh (triple Rh-negative) woman with an Rh-positive husband. A high percentage of persons who seem to be rh' are really Rh positive, because their blood contains an Rh_o variant (weakly reacting Rh factor). The presence of such Rh_o variants can readily be detected with most of the potent anti-Rh conglutinating serums, provided that the tests are carried out by the antiglobulin technique. If the presence of an Rh_o variant is demonstrated, the patient may be considered Rh positive.

HEART DISEASE AND PREGNANCY

To the Editor:—*A young man contemplates marrying a woman of 21 who has an inactive rheumatic mitral and aortic lesion. The woman and her family do not remember her having had rheumatic fever, which was discovered recently on general examination. Are there any statistical data on what her chances are to maintain good health and survive without childbirth and what they are if she gives birth to one or two children?*

I. Fleiss, M.D., New York.

Answer.—A young woman, aged 21, who has "an inactive rheumatic mitral and aortic lesion" has a favorable outlook, with or without pregnancies. It is difficult to make the prognosis for such a patient both in the case of no childbirth and in the case of giving birth to one or two children. Rheumatic fever is a recurrent disease and in the majority of instances does recur once, twice, or oftener, even after the age of 21. Obviously, each recurrence alters the outlook and renders the prognosis for survival less favorable. A young woman with a compensated rheumatic heart and no recurrences of rheumatic fever can, however, safely endure pregnancies with little or no appreciable danger of even temporary decompensation. Pregnancy is a natural function and should usually exert no undue strain on the well-compensated rheumatic heart.

LATE SYPHILIS

To the Editor:—*What extra hazard is incurred by persons with adequately treated late syphilis, who have persistently positive serologic tests, who obtain work involving exposure to hepatotoxic chemicals?*

Philip K. Condit, M.D., Lafayette, Calif.

Answer.—The liver, in contrast to the cardiovascular and nervous systems, is not notably susceptible to syphilitic involvement. There is no evidence that a person with adequately treated late syphilis would be more susceptible to the action of a hepatotoxic chemical. Since arsenic is hepatotoxic, it would be desirable to avoid its use in treatment of syphilis of a person who through occupation is exposed to other hepatotoxic chemicals.

SMALL UTERUS

To the Editor:—*A 26-year-old married woman was found on physical examination to have a small uterus. She is tall, thin, and has a somewhat masculine distribution of hair and a poor supply of vaginal secretions. She is anxious to become pregnant. She ovulates, has patent tubes, and menstruates normally. What treatment would you recommend for increasing the size of her uterus without interfering with ovulation or normal menses?* *M.D., Pennsylvania.*

Answer.—If this woman menstruates and ovulates normally, it is almost certain that the supposedly small size of her uterus has nothing to do with her sterility, if that is her problem. Nor does the fact that she is tall and thin, with a masculine distribution of hair and a poor supply of vaginal secretion, seem to be of special significance. It is assumed that other simple sterility studies, such as examination of the husband's semen and determination of her basal metabolic rate have been included in the evaluation of this problem. This patient's uterus is obviously not of the so-called infantile type (a much-abused term), and it is reacting normally to the ovarian hormones. There would seem to be no indication for sex hormone therapy, which might conceivably do more harm than good.

THE PLACENTA

To the Editor:—*Why is the placenta considered both fetal and maternal in origin?* *M.D., New Mexico.*

Answer.—The bulk of the placenta consists of chorionic villi, and these are fetal in origin. The maternal portion of the placenta is the decidua basalis, which covers the villi. The placenta may be regarded as a collection of maternal blood between the chorionic membrane covering the villi and the decidua basalis into which the villi dip. The separation of the placenta after delivery takes place in this decidual zone, and very little decidua covers the placental surface.

HERPES ZOSTER AND BELL'S PALSY

To the Editor:—*A man had herpes zoster of the ophthalmic nerve and the trunk. While he was recovering from the rash, Bell's palsy developed on the same side. Is this a coincidence, or does herpes zoster sometimes affect motor nerves?*

Willard N. Hayes, M.D., Norway, Mich.

Answer.—The syndrome described of herpes zoster of the ophthalmic nerve and the trunk and the subsequent development of Bell's palsy is a familiar picture. Actual herpes zoster of the seventh nerve with Bell's palsy is classified generically as Hunt's syndrome. There are four types, which may involve combinations of nerves, the 7th and 8th, the 9th, 10th, and occasionally other nerves. Often there may be associated meningitis or even encephalitis. Frequently, such lesions are severe, and paralysis may be protracted.

INJECTIONS IN A HEMOPHILIAC

To the Editor:—*A boy, 9 years old, recently bled for 31 days from a simple cut on the right foot. The child is in good condition at present, but has proved hemophilia. Is there any reason to avoid smallpox vaccination or, in case of an accident, tetanus antitoxin injections? The mother of the child was warned by two doctors to avoid any kind of injections.*

M.D., California.

Answer.—Rather than accept the possibility that some definite indication for the use of tetanus antitoxin may arise, it would seem preferable to actively immunize the child with tetanus toxoid. If this is done, it would be advisable to resort to the intracutaneous method. The first 0.5 cc. dose of fluid toxoid is given intradermally in divided amounts every other day as follows: 0.1 cc., 0.2 cc., and 0.2 cc. In the absence of contraindications, the same procedure should be repeated in about six weeks. The mere inoculation of smallpox vaccine by the multiple pressure method could probably be accomplished without serious difficulty; however, with development of a successful vaccination in a hemophiliac, the danger of hemorrhage can not be ignored. Under the existing circumstances, it would seem prudent not to vaccinate unless there is a known exposure to smallpox.

LUPUS ERYTHEMATOSUS

To the Editor:—*Are estrogens or corpus luteum extract harmful to young women with discoid lupus erythematosus? Please give me a reference on the subject.* *M.D., Ohio.*

Answer.—The question involves several controversial aspects. There is no clear-cut opinion among dermatologists and internists in this matter; nevertheless, opinions, indirect evidence, and clinical observation suggest that estrogens or extracts of corpus luteum do react harmfully in patients who have acute or subacute systemic forms of lupus erythematosus. The same may be true in pregnant women who have chronic discoid lupus erythematosus. The most recent article is that by Ellis and Bereston (Lupus Erythematosus Associated with Pregnancy and Menopause, *A. M. A. Arch. Dermat. & Syph.* **65**:170-176 [Feb.] 1952).

ROENTGENOGRAPHIC STUDIES DURING PREGNANCY

To the Editor:—*Wives of service personnel who have had their early maternity care in service hospitals have had complete roentgenographic studies, including studies of the thorax and pelvimetry. These studies are often done early in the pregnancy, even during the first trimester. Is this practice dangerous to the fetus? Is not cephalopelvimetric examination done late in pregnancy more informative?* *M.D., Ohio.*

Answer.—The small amount of radiation incidental to roentgenographic studies of the maternal pelvis offers no greater hazard to the young embryo early in the pregnancy than it does to the mature fetus at the end of pregnancy. Roentgen pelvimetric examination is more informative early in gestation when the fetus will not interfere with pelvic landmarks. Fetometry adds little to the diagnosis of cephalopelvic disproportion; however, fetal normalcy, presentation, and position can best be determined at or near term.